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**HISTORY TEACHING METHODS AND STUDENTS'  
ATTAINMENTS AND ATTITUDES IN THE FIRST YEAR OF  
SECONDARY SCHOOLING IN SAUDI ARABIA**

By

**MOBARAK SAEED N. HAMDAN AL-SHAHRANI**

A thesis submitted for the degree of Doctor of Philosophy

School of Education

University of Durham

1995

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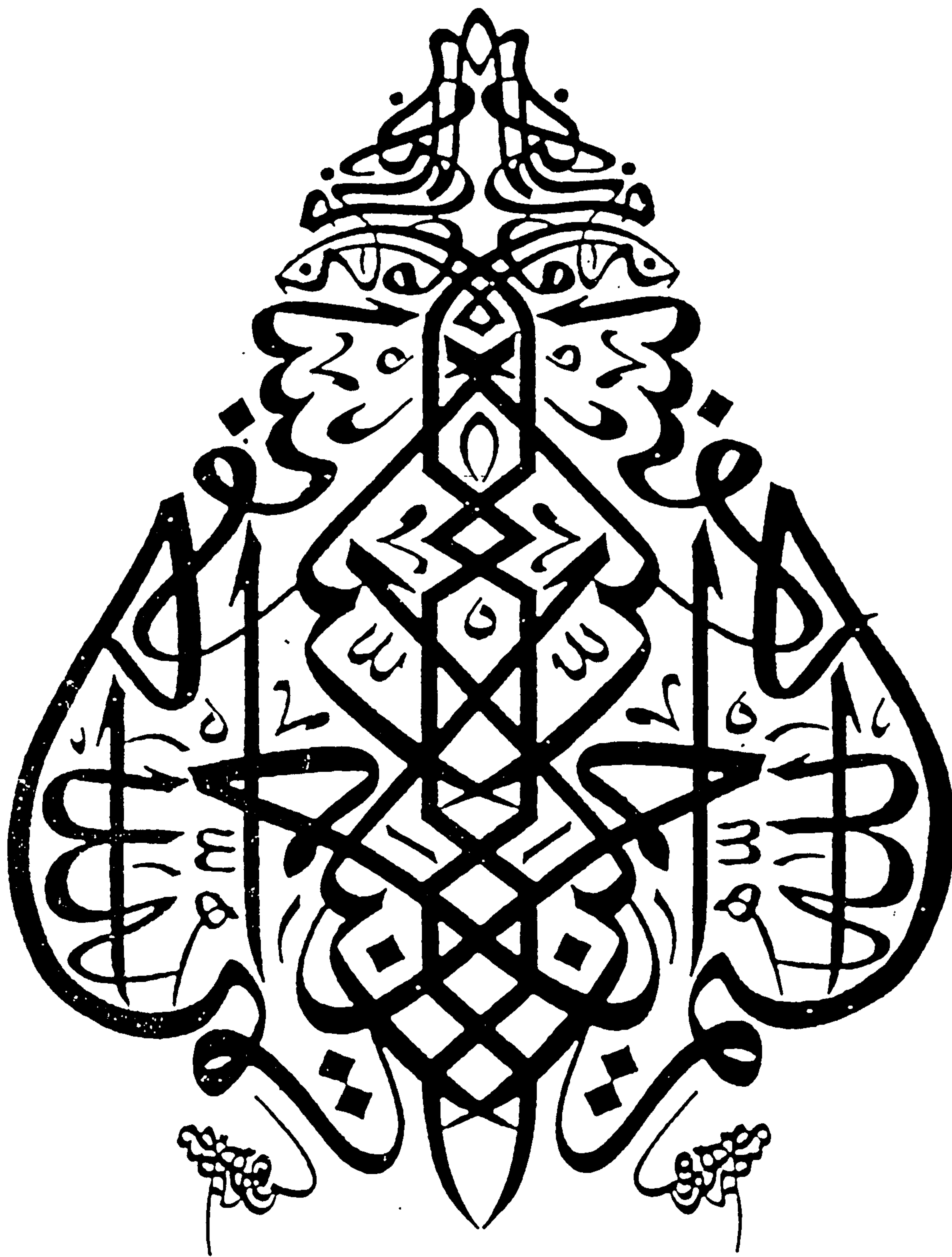
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1 6 MAY 1996

IN THE NAME OF ALLAH, THE  
BENEFICENT, THE MERCIFUL





## **Dedication**

To my dearest father Saeed, my dearest mother Fatimah, my dearest brothers Dr. Saeed, Mr. Nasser, sisters, nephews, nieces and all my dearest family in Saudi Arabia.

To my beloved wife Um-Saeed and my beloved children Fatimah, Afnan, Saeed and Ibtihal.

## **Abstract**

The purpose of this thesis is to investigate the position of history teaching in Saudi Arabia, where history teachers focus mainly on the didactic method. A further purpose is to explore students' attitudes to learning and the teaching process, their thinking skills, problem solving and independent learning. A large survey was conducted to explore students' attainments, attitudes toward history and their ability to think critically. The survey study consisted of 351 student from the first year of the secondary schools. Further, an experimental study was undertaken to investigate the effect of the inquiry method and the traditional method on students' achievements in history and their critical thinking ability and attitudes towards history in the first year of the secondary schools in Saudi Arabia. The experimental study consisted of two groups: the experimental group included 31 students and the control group included 62 students of one secondary school.

The thesis consists of six chapters.

Chapter 1 outlines the research issues.

Chapter 2 reviews the literature in order to outline the implications of the inquiry and traditional methods and their effectiveness in studying history and in improving motivation and the critical thinking.

Chapter 3 describes some features of the educational system of Saudi Arabia in order to provide a broad context within which the research may be evaluated.

Chapter 4 describes the procedures for data collection. These consisted of two main parts: (1) sampling and (2) choice of methods.

Chapter 5 outlines the findings of the data analysis. The data are described and analysed using frequencies, percentages and the Friedman and Mann-Whitney tests. These findings are then commented upon and interpreted.

Chapter 6 includes a general discussion, critiques of the strengths and weaknesses of the study and some recommendations and suggestions for further studies in the future.

The main findings of this study were that students have strong positive attitudes toward history and history teachers. They viewed history as an important subject. They enjoyed using different learning styles and using different resources. Further, students in the experimental group achieved higher scores than students in the control group in some of the test items.

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## **Declaration**

This thesis results entirely from my own work and has not been previously offered in candidature of any other degree or diploma.

## **Acknowledgements**

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# **Chapter I**

## **Introduction**

### **1.1 Background**

Education is considered a fundamental aspect of our lives that enables people to improve themselves morally, socially and spiritually. School is deemed one of the most important ways to achieve such objectives and to prepare students for the present life today. Further, the function of school is to improve students' knowledge and ways of learning and thinking. This is in order to make them active and effective in their society and to meet their needs outside of school, in other words, to prepare them to some extent for the practical duties of later life (Dewey, 1915, p. 10).

The educational process should be directed to achieve the above goals. All educators whether curriculum makers or administrators and teachers should have these goals as their aim. For example, due to the information and population explosion and technological development, it is necessary to assist students to meet these demands and to be able to use different kinds of technological materials. Teaching students to recall facts does not enable them to adapt to this situation, so that it is important to teach them to think scientifically and critically not just recalling facts for the examination's purposes. This is what Dewey called for in his book 'How to think' (1931). Consequently, all aspects of the learning and the teaching process i.e. teachers, students and the subject matter, should be developed to meet the needs of the new era. This development process should be both comprehensive and extensive. These comments apply to today's students who need to be able to discuss, infer, evaluate, distinguish between facts and fiction and to be able to adapt with the changeable world. Dunfee and Sagl (1966, p. 6) described today's pupil as follows:

He seeks to understand cause-and-effect relationships that explain them. And he formulates generalizations about these cause-and-effect relationships. Although these generalizations are more often than not erroneous, they clearly indicate his readiness for this type of intellectual stimulation. Most of his questions are 'how' and 'why' questions, questions that indicate a desire for reasons and explanations deeper than the 'what' or informational level. Questions that have led to 'knowledge about' the physical and social environment. Today's child derives his information about people, places and events from many sources. Whereas in the past his primary sources of information were word of mouth and reading, he now draws on a variety of communication media that are not only diverse but readily available (p. 6).

Schools should be appropriate places to enable students to achieve such skills.

Fogarty and McTighe (1993) described the mindful school as follows:

The mindful school is a place where students can develop productive problem-solving strategies, mindful decision-making tactics and creative, innovative thinking; where teachers as architects of intellect...students gradually accept responsibility for their own learning. A thoughtful classroom, on the other hand, encourages inquiry and experimentation, values unique thinking styles, honours diverse points of view and provides opportunities for students to choose products and methods (pp. 165-6).

The debate and discussion of the most effective means for developing learning is still unresolved and plays a part in the development of this thesis.

Many efforts have been made in the 1960s to reform and develop social studies. This development reflected the importance of thinking and the necessity to move from the old recitation method to a method that enabled students to think. Moving from teacher-centred to student-centred learning encourages independent learning, experiential learning, collaborative group work and negotiated curricula (Bridges, 1993, p. 138). So that teachers should use different types of teaching methods to enable their students to have more confidence and capability to make their own way in the world (ibid, p.149). Social studies should be able to help students in schools to achieve different purposes. Wesley and Wronski (1964, p. 78) pointed out that the effective social studies programme should enable students to acquire skills in:

1. Critical thinking;
2. Analysing and resolving problems;
3. Locating and gathering information;
4. Organizing and evaluating information;
5. Reading and listening for meaning;



6. Speaking and writing intelligently;
7. Interpreting maps, globes, charts and graphic materials;
8. Using time concepts;
9. Participating in group activities.

Features of this list are used in the development of this research.

Studying history is considered important to help students to study the past and to understand the present and future and place their own experience in a larger context (Beer and Blyth, 1991, p. 5). In addition history should assist students to have different aspects of historical understanding and its skills that relate, to some extent, to the inquiry method. Teaching history in schools is intended not only to equip students with a mass of information and facts but also to help them to use their minds, imagination and judgement to be able to weigh facts and events, draw conclusions, compare and contrast and generalize (Drummond and Badley, 1929, pp. 18-20). Spoehr and Spoehr (1994) indicate that history teaching should enable students to think historically through discrimination and informed judgement (p. 72). By and large students should be involved to establish a vivid picture of how and why different events and actions may have happened (Dewey, 1915, p. 156).

There are different kinds of teaching methods that enable pupils in schools to participate actively in the learning process, using their thinking skills, practise different types of problem solving, having an active role in the learning and teaching operation and interacting with their teachers. However there is no single method that would be appropriate to all subjects, so that using different kinds of teaching methods is considered the best in order to meet students' needs, interests and aptitudes.

One of the methods which is described in the literature is the inquiry method. This method encourages students to raise questions or problems, formulating tentative answers or solutions, collecting data, dealing with different resources and to find out the solution or answers to their queries by themselves. It is believed that this method will enable students to discuss different aspects of history with each other in groups and to explore and analyse historical books and documents. Further, it will assist them

to think critically when they apply the skills of inference, deduction, interpretations, distinguishing between facts and myths and evaluation. Using different teaching methods may help students to enjoy their learning in schools in terms of using their capabilities in ways that increase their enjoyment such as co-operative group work, problem-solving and discussion based learning (Rudduck, 1993, p. 134).

In the Kingdom of Saudi Arabia the educational system has tried to meet many of these developments. These are located in Islamic teaching. This effects the extent to which innovation may be researched. It is possible within this context to explore different teaching methods but the curriculum is not to be challenged. However, from the literature and the writer's experience, many teachers still use the traditional method in their teaching at all educational stages. Discussion approach is usually confined to students' answer to teacher's questions.

For example, Al-Ismaeel (1977) in his study of 174 social studies teachers in 68 secondary schools found that 75% of the teachers used the lecture method most frequently (p. 85). Al-Tuwaini (1986) conducted a study to investigate the attitudes of teachers and supervisors toward the social studies curriculum in the elementary schools in Saudi Arabia (p. 21); one of the important findings in relation to the most frequently used teaching methods in the elementary stage was the agreement between teachers and supervisors that memorization and lecture are the most common form of teaching. Further they also agreed that teachers did not encourage their students to use different and suitable educational media (p.118). In a study of teaching history in the Kingdom of Saudi Arabia, it has been concluded that the technique is based, to great extent, on the teacher's efforts with little participation on the part of students (Ali, 1977, p. 12).

From studies reported in the journal of Al-Yamamah, it has been argued that Al-Salum (1994) emphasizes that the time has come to improve and advance education levels. Further he states that teachers should develop their work by applying some of the other teaching methods. This would involve a response to research and the thinking of students (p.37). Like Al-Ismaeel and Al-Tuwaini, he notes that



teaching in Saudi Arabia schools is still focused on memorizing and recalling facts and there are few opportunities for students to understand, think, analyse, and create (p. 44).

Also, in 1990 the researcher undertook a series of unstructured informal interviews with some social studies inspectors, teachers and students. These interviews were not recorded. However they supported the findings cited above. History and geography were considered to be dull subjects and the interviewees expressed an interest in the use of different teaching methods not only recitation or the traditional approach. As teachers are familiar with using the traditional method, their students have no opportunity to use their thinking skills. For example critical thinking and problem solving skills were ranked lowest by teachers. Al-Shawaan (1992, pp. 62-63) in his study of the application of the social studies skills at the intermediate stage in Saudi Arabia found that inspectors and teachers ranked most highly critical thinking and problem solving skills as important skills in schools. However these skills were ranked lowest in their application in schools. He concluded also that students' ability to listen to their teacher's talks or their fellows' answers was also ranked highly in importance in learning and ranked highly in application in schools. Moreover the researcher visited different schools particularly in the intermediate and secondary stages. He also, like Al-Ismaeel, Al-Tuwaini and Al-Salum noticed that the most common method that was used by teachers was the traditional method with only a few question and answer activities in all subjects in general and in history lessons in particular. Students may be generally eager to explore school subjects dealing with different activities that would enable them go beyond recalling facts from textbooks and to use their thinking skills. Most, if not all of the history teachers in the studies referred to above, may lack the awareness of the demands of teaching history in schools because they focused on the didactic use of textbook and maps. On the other hand as the literature on teaching history reviewed later will show, there are different procedures in which history can be more in learning for students. These are studying

original sources, recording details and making inferences, interpreting the details and inferences and using students' own language (Hardwick et al, 1967, p. 5).

Given that the contents of the syllabus are prescribed, it might be helpful to incorporate aspects of this inquiry approach into history teaching in Saudi Arabia. The interests of teaching methods in the Middle East in general and in Saudi Arabia in particular encourage the researcher to undertake this study but the content is fixed.

## **1.2 The Statement of the Problem**

This reading, the unstructured informal interviews and personal experience in schools and colleges led the researcher to formulate the following question which provides the basis for the thesis.

How do two very different teaching methods affect students' attainment, students' attitudes towards history and their thinking about history in the first year of the secondary schools in Saudi Arabia?

Different sub-questions derived from this general question led to different hypotheses which are proposed and addressed in chapter 4. The main issues which will be explored are:

- What is the students' preferred learning styles?
- Are there any differences between a control group and experimental group in a pre-test, a post-test and a postponed test in their attitudes towards history?
- Are there any differences in achievement of critical thinking between students in a control group and experimental group in a pre-test, a post-test and a postponed test of critical thinking?
- Are there any differences in achievements between students in a control group and experimental group in a pre-test, a post-test and a postponed test of achievement in history?



### **1.3 The Significance of the Study**

The importance of this study springs from the fact that it is an innovation in Saudi Arabia. It includes a large survey about traditional methods. It may provide extensive data useful for discussion of students' responses to the learning of history in Saudi Arabia, their attitudes and critical thinking skills. It may provide a framework for the history in the curriculum in Saudi Arabia. It may provide teachers with evidence and ideas which may be used to improve their classroom activities. It may be useful to provide different information about teaching methods in general and history and history teaching in particular which will be helpful to other researchers and to people in the world who would like to know about the educational system in Saudi Arabia.

### **1.4 Review of Literature**

Chapter 2 contains a review of literature related to the research question. The topics reviewed are the educational principles underlying traditional and inquiry methods for teaching history, some aspects of learning, the nature of history, studying history in schools and approaches to teaching history.

Chapter 3 contains a profile of the educational system in Saudi Arabia.

### **1.5 The Research Methodology**

Chapter 4 describes the research methodology and procedures for data collection. This study consisted of a survey that included a sample of the first year in all the public secondary schools in Abha Educational Directorate and an experimental study involving two classes in one of the first years of the secondary school in the same region. In the experimental study, the teaching of the prescribed history textbook was modified and revised to incorporate aspects of the inquiry method. Students in this stage are around 16 years old. Data was collected through different instruments. These were students' attitudes questionnaire, Modified Watson-Glaser Critical Thinking Appraisal, achievement test in history. These will be discussed in chapter 4 in more detail.

## **1.6 The Results and Analysis of Data**

Chapter 5 contains the analysis of data which obtained from the fieldwork. The main findings were that students have strong positive attitudes toward history and history teachers. They enjoyed using different resources in history lessons and enjoyed using different learning styles. In the experimental study, students of the experimental group achieved more highly than students of the control group on the completion of the experiment achievement, students of the experimental group held more negative attitudes towards teacher talks and lectures while students of the control group still preferred this style positively.

## **1.7 Conclusions and Recommendations**

Chapter 6 contains general discussion about the issues which have been reviewed in the literature in relation to aspects of learning and history teaching. This chapter also contains general discussion about the findings of this study with links to the literature review. Discussion of the strengths and weaknesses of this research will be presented in this chapter. In the light of the findings of this study different recommendations and suggestions for further studies will be presented.



## **Chapter II**

### **Review of the Literature**

#### **Introduction**

The main purpose of this chapter is to review the literature on traditional and inquiry methods, and their advantages and disadvantages, in order to provide a context for the empirical research and to identify issues for empirical investigation. The chapter will review material relating to three areas relevant to the research as follows: (1) approaches to teaching (traditional/didactic and inquiry), (2) aspects of learning, (3) history and the teaching of history. A fourth part lists issues to be explored in the investigation in chapters 4-6.

#### **2. 1 Approaches to Teaching**

Before starting to explain the traditional and inquiry teaching methods, it is necessary to define what a teaching method is.

##### **2. 1. 1 Definition of Teaching Method**

A teaching method has been defined as:

An approach to instruction that has been systematically described and that can be applicable to a number of subject areas and teachers. Examples include the lecture method, the tutorial method, the Socratic method, and more recently, such technological approaches as computer-assisted instruction and telecommunication (Shafritz et al 1988, p. 469).

This definition may be considered typical and comprehensive. Some writers such as Wesley and Cartwright (1968, p. 161), Joyce and Weil (1980, p. 1) indicated that 'method' is the procedure of guiding and directing the experiences of students so that they learn. It can be used to shape curricula, to design instructional materials, and to guide instruction in the classroom and other settings. This may include a set of notes by the teachers in preparation for lessons. A teaching method has been considered as a composite activity in which teachers, students and subjects represent basic components in a dynamic interaction (Mouly, 1982, p. 16). In fact this 'dynamic

interaction' is relevant to the inquiry approach in that it enables students actively and effectively to tackle problems and interact with each other under the supervision of their teachers. Other writers such as Ehman et al (1974), Ellis (1979) and Curzon (1985) have made the same point. They assert that interaction is important to motivate students and make them active. Further, Gage and Berliner (1992) supported Shafritz's definition that a teaching method can be applied by more than one teacher ( p. 384). That means that a teaching method may be used by anyone.

No single method can be used all the time to meet all kinds of learning objectives (Joyce and Weil, 1980, p. 1). Gage and Berliner (1992, p. 385) argue that there are many important factors to deal with in discussing the methods of teaching. For example, the objectives of the lesson, the students' age, intelligence, motivational characteristics and background of previous learning and achievement in the subject matter. My impression is that these elements should be taken into account in selecting any method. Research may be necessary to determine whether one method is more suitable for some objectives than others. Moreover, for any subject to be learned effectively in classrooms it may be better to utilise different ways of activating and motivating students, different ways of presenting sequences, different opportunities for some students to 'skip' parts while others work their way through different ways of expressing their ideas (Bruner, 1970, p. 124). This will meet the individual differences between students and enable them to acquire knowledge and improve their thinking skills.

It can be seen that major components of any method are the teacher, the pupil and the subject. Wesley and Cartwright (1968) indicated that no method should remain static but should yield to the purposes and procedures of particular teachers in particular classes (p. 165). There are, then, many teaching methods used variously to assist students in acquiring self-awareness, to help students to participate more in groups, to motivate inductive reasoning and so on (Ellis 1979, pp. 275-6). In many discussions, these methods are grouped and discussed under two main headings: the traditional/didactic method, and the enquiry or discovery method.



This chapter will go into more detail about the two methods of concern to this study.

## **2. 1. 2 The Traditional/Didactic Method**

The traditional/didactic method has been used for thousands of years in teaching and learning. It has been known by several terms e.g. expository teaching, recitation, teacher-centred, didactic and prescriptive (Kyriacou and Marshall, 1989, p. 1). Dewey (1933) indicated that in this method there is repetition and frequent domination of instructional procedure by recalling of information and memorizing for the sake of producing correct replies at the proper time ( p. 260). Stones (1970) supported the above definition of the traditional method by saying that most of the time teachers ask questions and students answer them and then the teachers evaluate the answers (p.110). Davies (1981) pointed out that the demonstration method has similarities to the lecture method. Both are oral methods of teaching, and telling plays a central role (p. 40). Jones (1979) adds to this definition by suggesting that in the lecture approach there is didactic transmission of information to the passive student listeners who have no opportunity to ask questions or to offer comments ( p. 92). In this way teachers always have authority inside the classroom; they are talking and telling most of the time, and their actions might be restricted by other duties (Woods, 1980, p. 237). Thus the traditional method is premised on the teacher as a possessor of knowledge with the pupils as recipients.

The didactic method has been defined in the dictionary of education as:

A lecture-based approach to teaching that is fairly rigid and that emphasizes compliant behaviour on the part of the students while the teacher dispenses information (Shafritz, 1988, p. 151).

Another definition describes the didactic method as follows:

An adjective usually applied pejoratively to teaching that is thought to be excessively concerned with rather authoritarian instruction - telling students everything they are expected to know in a way that does not allow them opportunity for discovery or for making their own approach to the subject (Rowntree, 1981, p. 67).

This method, as mentioned earlier, depends upon the teacher's efforts; he talks for some time and asks the students several questions, often the same question for all

of them, and the students memorise facts and knowledge by rote learning. McEwan (1989, p. 61) indicated that the didactic approach is considered as 'head-filling'; the teacher is a fount of knowledge; the learner is a passive receptor or blank slate upon which the beliefs and opinions of the teacher are inscribed (p. 61). This means that teachers are seen as the possessors of knowledge and information to be learned by students.

Darling (1978) described this method as direct instruction, which often depended upon the authority of the teacher and sometimes was accompanied by requiring students to memorise a lot of information. In this approach competitive examinations were used as a healthy stimulus to learning (Darling, 1978, p. 157). From these definitions, it can be seen that the traditional method is based on the authority of the teacher and the passivity of students. The method could be effective if the teacher were very good, enthusiastic and able to encourage students to participate in classroom activities.

There are several advantages and disadvantages claimed for the traditional method.

### **2. 1. 3 The Advantages of the Traditional Method**

This approach can be used to cover a large amount of knowledge in a short time and it is likely to be used with a large number of pupils, whether they are beginners or advanced learners (Davies, 1981, p. 39). Clark and Starr (1981) added that it can give students the opportunity to learn from the responses of other students (p.168). This method may be useful for introducing a new topic of study or to present certain background information that students need in order to prepare them for further study (Jones, 1979, p. 93). It can be seen that the traditional method is considered useful to enable students in different ways. As Gregory (1975) indicated, this method has been deemed as 'economical' of teachers' time; it gives uniformity of information and allows teachers' spontaneity and it is at its best an organised and systematic presentation of content (p. 56). Clark and Starr (1981) suggested that it can be used to introduce activities, to motivate students, to sum up, to explain difficult points, to fill



gaps between units and to provide information ( p. 168). The attractions, then, are several. Nevertheless this approach contains several weaknesses.

## **2. 1. 4 The Disadvantages of the Traditional Method**

Some educators have severely criticised this method. Davies (1981) said that it embodies only one-way communication, and that the students are passive because they have no chance to participate in the process of learning and teaching (p. 40). Beard and Hartley (1984) support this view, arguing that in this method pupils have no opportunity to ask questions, therefore they must all receive the same content at the same pace. Furthermore, they receive only one interpretation of subject matter (p.153). In this method the student may delude himself into believing that he has understood the precise meaning of the material studied when he has only grasped vague and confused generalities and no real meaning (Ausubel, 1963, p. 21). Other writers such as Thornton (1987) and Costenson and Lawson (1986) stated that the only source of information is the textbook and students deal with pre-formulated questions with one 'right' answer. Some writers such as Fenton (1966), Jones (1979) and Clark and Starr (1981) added that affective and psychomotor learning rarely occur in the traditional approach and that pupils seldom reach the higher levels of cognitive learning such as synthesis, evaluation and critique since they do not deal actively with the knowledge being considered. Likewise in this approach students have no ability to challenge their teacher because they must accept what he says as an authoritative person, and the course syllabus is restricted by the authority system (Ehman et al, 1974, p. 67). From the above it can be asserted that this method neglects students' thinking skills. Campbell (1990) described the students' role in the traditional approach:

Some students had their heads on their desks and were either asleep or "resting their eyes". Others were gazing out the window or about the room, while still others were "doodling" on their note book paper. In short, few appeared to be psychologically involved. At the conclusion of the class, when the teacher asked if there were questions on the material, he met with the same unmoved and unfeeling response that had prevailed for the entire class period (p. 21).

As mentioned earlier it seems that this method does not motivate the students to take an effective role in the learning and teaching process. Motivation plays an important role in the classroom as students are encouraged to learn and behave well if they find their classroom activities interesting. On the other hand, others who are not stimulated might misbehave and cause discipline problems. To avoid behaviour problems it is necessary to engage pupils completely in learning and to stimulate them to want to learn (Yelon et al, 1977, p. 295). It can be seen from this that the traditional approach risks demotivating students and does not guarantee learning.

Several educationalists have criticised traditional styles of teaching. For example, Page (1990) cited Rousseau who believed that traditional rote methods were damaging:

this education caused negative attitudes in students by stifling their natural desire for activity and it made them deceitful, selfish and pretentious... this education was boring, beyond the student's comprehension and it taught the students "to believe much yet to know little". [This method encouraged the students] to sit motionless and silent, made them hate the subject and made them passive, feeble and stupid (pp. 10-11).

Moreover, students using this approach might forget facts; it has been found that students who averaged 39% on a test of factual information immediately after conventional lecture, averaged less than 3% a month later (Gibb and Jenkins, 1984, p.28). Further, students cannot keep their attention on their teacher for a long time and it could be decreased after 15-20 minutes (Scheiman et al, 1989, p. 10). Largely, it seems that the use of the traditional approach is one of the reasons that may make students dislike school and become bored.

It could be argued that in the didactic method of teaching students might only be able to acquire a body of knowledge rather than to think critically and creatively because their minds are concentrated only on receiving a body of knowledge.

Aware of the drawbacks to this approach educationists began to look for other methods of achieving educational objectives.



## **2. 1. 5 The Procedures of the Traditional method**

As we have seen, the traditional method is used to present information and facts in an authoritative way to students (Yorke, 1981, p. 12). To implement this method teachers talk most or all of the time, presenting, explaining, commenting and asking questions. Some teachers usually follow several steps in their use of the traditional method, commonly known as Herbert's five steps. These can be summarized as follows (Henry and Felkin, 1921, p. 107):

- **Introduction:** in this stage teachers try to keep the attention of their students and analyse the ideas already known by their students.
- **Presentation:** this is the main body of the lesson in which teachers present new ideas or materials.
- **Association:** making comparisons, explaining similarities and differences.
- **Recapitulation:** at this stage teachers draw conclusions, summarize the main points in the lessons and formulate generalizations.
- **Application:** teachers evaluate students' understanding.

Sometimes the traditional method can involve a question-and-answer format, in which a teacher poses questions for students to answer from the textbooks or the previous presentation (Hyman, 1974, p. 199). This may indicate that teachers have the main and effective role in implementing these five steps but in some cases the students may participate in a restricted way. This differs from the inquiry method in which students participate more actively and effectively and the role of the teacher is to guide and support their students.

As can be seen from the description above of the traditional method and its procedures, the teachers adopt the role of explainers or lecturers to enable students to acquire more information from the lessons. On the one hand teachers transmit and present what students should learn, and on the other hand students gain mastery of this information and knowledge (Joyce and Weil, 1980, p.76). Further, teachers are in this manner responsible for controlling and manipulating the pace, substance and sequence of the lesson (Beyer, 1971, p. 11). From this it is clear that the teacher adopts an

authoritarian role in the traditional method - he identifies, explains, summarizes and infers and, in short, dominates the teaching and learning process.

## **2. 1. 6 How can the Traditional Method be made more effective?**

The traditional method can be used in learning and teaching in an appropriate way and, in order to make this approach more interesting, Many writers such as Clark and Starr (1981, p. 172), Beard and Senior (1980) suggested that concentrating on thought-provoking activities might be much more productive than acquiring information and encouraging students' participation in these activities. The traditional approach neglects the role of students in their own learning. Some writers such as Jones (1979) and Beard and Senior (1980) added that holding the attention of the pupils throughout the lecture should be taken into account by using interesting visual aids such as pictures and models, and by posing questions. This will avoid students' boredom. In addition, to enable this method to work with students and to be relevant to them, teachers should determine what students find interesting. In fact this is not an easy job (Gage and Berliner, 1992, p. 394). To overcome negative factors such as a harsh or dull voice the teacher should exert much effort to use emphasis and pauses to make his lecture acceptable (p. 62).

In all cases it is necessary for teachers not to depend solely upon the traditional method but to use this method together with other approaches (Carr, 1962, p. 21). After all, there are some situations in which the traditional method can be used to give new information which would otherwise not be available, to make students take an interest in the lesson, to present and organise knowledge for a small group (Gage and Berliner, 1992, p. 457). Some writers such as McClelland and Steele (1973) and Mouly (1982) indicated that to make the traditional style more attractive it is useful to prepare supplementary material like hand-outs, charts, transparencies for overhead projection, and to use the chalkboard to explain the main features of the subject and to realise varieties of behaviour that are not easy to describe verbally or demonstrated in the classroom.



There are numerous studies which have compared the traditional method with other methods to determine its relative effectiveness. McKeachie and Kulik (1975) investigated the traditional method and the discussion approach. They found that the traditional method was effective in about twelve of the factual examinations whereas a discussion based approach was effective in four; however the discussion approach was effective for retention of information, higher level thinking, positive attitudes and motivation. This supports the view that the traditional method is effective to some extent in certain areas such as comprehension (Gage and Berliner, 1992).

In short, the traditional method may be useful and helpful in introducing new material, explaining difficult terms, and encouraging students to take notes, but there is no place to develop students' thinking skills.

## **2. 1. 7 The Inquiry Method**

Many educators, such as Rousseau, Pestalozzi and Dewey advocated a style of teaching which was more student-centred. They believed that pupils should be offered all the scholastic subjects in a way which would give them an opportunity to learn actively and experientially in pursuit of educational aims, whether cognitive, affective or psychomotor, so that students learning in this style of education would be able to produce, contribute and create. This would encourage a higher degree of student engagement (Campbell, 1990, p. 22).

From the end of the nineteenth century many educators, for example Pestalozzi, Froebel, Rousseau and Dewey, renewed the attack upon the traditional view of education. They called for student-centredness instead of teacher-centredness because students represent an essential part of the learning and teaching process and they should be prepared to be active members in their society. They advocated teaching all the scholastic subjects in a way which gave students the opportunity to learn and practise skills experientially (Page, 1990, pp. 10-20). In order to adapt to the requirements of the new era which is marked by the information revolution, it is argued that students need to be more intellectual, effective thinkers, capable of

independent actions. Dewey indicated this by suggesting that what we need is a type of education that will enable us to develop the spirit of inquiry, of willingness to weigh the evidence, of experimentation, and it would be useful to pay more attention to the application of the scientific method in the social sciences, and to think seriously about a method which combined experience, problem solving, hard thinking and action (Connell,1980, p.77).

Taba (1962, p. 184) and Hawes (1961, p. 8) have argued that the greatest need in the scientific age is for students who can use their minds actively and productively, applying their minds and knowledge to new situations. This need has increased since the 1960s, as the information revolution has made more necessary the development of critical and evaluative skills needed for assimilating and accommodating the vast welter of information. It seems appropriate to make students' learning more meaningful. From this it may be noted that students should be able to use the scientific method.

Vygotsky, too, disagreed with mechanical formal teaching in which students merely sit at their desks and pass exams in a meaningless way. On the contrary, he supported the view that cognitive development and activity should be considered as central to the learning process (Sutherland,1992, p. 43). Indeed Vygotsky indicated that all higher order cognitive functions were socially transmitted, (Jausovec, 1990, p. 260), i.e. that significant experiential learning takes place in a social group. Vygotsky (1978) asserted that:

An interpersonal process is transformed into an intrapsychological one. Even function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals (p.57).

This may explain that social interaction should be taking place in the learning process.

The inquiry mode is not a new technique in teaching. If we look at educational history we find many scholars who made reference to this method. Socrates,



Aristotle, and Plato were pioneers of inquiry processes Orlich (1980, p. 283).

Hammerman (1989) pointed out that:

They looked at enquiry and discovery as general agents "to promote comprehension on the part of their students. Especially inquiry is a very natural way to learn and it is the way most of us go about learning on our own outside of formal learning situations; posing questions like: 'why'? 'how'? 'what do you think would happen if?' and trying to answer these questions in a rational, logical and systematic manner that seems to be by means of the enquiry process"(1989, p. 29).

Many educators such as McAninch (1990), Padak (1988) and Sheingold (1987) have claimed to use methods that enable students to be active agents who can, with motivation and guidance from their teacher and through textbooks, infer answers to their questions from rigorous inquiry, to satisfy their 'own curiosities' and use different resources. Ausubel (1978) indicated that this mode is essential for testing the meaningfulness of knowledge and for teaching scientific methods and problem-solving skills (p. 528). The inquiry approach might be useful for increasing the meaningfulness of material presented primarily by expository methods. Finally, various cognitive and motivational factors enhance the learning, retention and transferability of meaningful ideas when learned by discovery. (Ausubel, 1978, p. 528).

The inquiry method has been defined in a dictionary of education as:

An approach to education that encourages students to discover their own answers to questions provided by the teacher and to learn resourceful problem-solving strategies with guidance rather than by imposition from the teacher (Shafritz et al, 1988, p. 245)

Another definition describes the inquiry method as follows:

Studies centred around students' attempts to solve a particular problem or investigate a real problem, usually through some kind of individual or group research project (Rowntree, 1981, p. 81).

The inquiry method has been considered as a kind of reflective thinking.

According to Dewey (1938) reflective thinking involves:

active, persistent and careful consideration of belief or supposed form of knowledge from the point of view of the grounds that support it, and the further conclusions that follow from reflection...it is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole (Dewey, 1938, pp. 9, 104).



He also indicated the procedures of reflective thinking in the following:

(1) suggestions, in which the mind leaps forward to a possible solution; (2) an intellectualization of the difficulty or perplexity that has been *felt* (directly experienced) into *a problem* to be solved, a question for which the answer must be sought; (3) the use of one suggestion after another as a leading idea, or *hypothesis*, to initiate and guide observation and other operations in collection of factual material; (4) the mental elaboration of the idea or supposition as an idea or supposition (*reasoning*, in the sense in which reasoning is a part, not the whole, of inference); and (5) testing the hypothesis by overt or imaginative action (ibid, 107).

Dewey (1933, p. 260) also indicated that reflective thinking involves:

- A state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates.
- An act of searching, hunting, inquiring, to find material that will resolve the doubt.

This method has been known by several terms. Birniead and Ryan (1984) defined the inquiry approach as an effort ... to discover something new to one's thought not necessarily to the world (p. 31). They indicated that the inquiry method includes the following elements:

- It is the process by which pupils try to investigate a problem.
- It is a search for knowledge in which students engage in critical thinking.
- It might include making observations, asking questions, performing experiments and stating conclusions.

Taba (1962) supported Dewey's definition by saying that reflective thinking is also part of the process of problem-solving. The steps in problem-solving are essentially the steps of a complete act of thought as described by Dewey's idea of the process of inquiry, which covers all forms of reflective thinking and logical operations (Taba, 1962, pp. 183-4).

Many writers such as Bruner (1962), Lytton (1971), Gross (1978), Burgess and Jackson (1990), and Wilen and McKenrick (1989) described this method as involving different procedures which enable students to make discoveries for themselves with the guidance of their teachers.

From the discussions above it can be seen that the inquiry method is considered more appropriate in using the tactics of the scientific method and encouraging student participation in the learning process.

The inquiry approach in the classroom is now considered to offer pupils greater benefits than the didactic method (discussed later). Teachers are encouraged to use the inquiry method to offer students the opportunity to develop creative and critical thinking abilities. In the context of teaching history, Jamieson (1971) argued that if the only sources of information were the teacher and the textbook, students may consider history as something which exists only in books or in the depths of the teacher's mind. To introduce the possibility of the inquiry method would involve a review of the large body of available material as well as teaching techniques (Jamieson, 1971, p. 3). Hence, the inquiry method might be suitable for developing thinking, helping students to adapt to their environment and society, and assisting them to think and act effectively, in other words encouraging them not to accept everything at face value as they would have done in the traditional approach. Furthermore it is claimed that the inquiry method is useful for raising motivation, student autonomy and self-esteem, all through active involvement in their own learning.

In short, the inquiry method is a process in which students concern themselves with searching for the subject matter, principles, facts and solutions to problems under the guidance of the teacher; it embraces inquiry, discovery, reflection, problem-solving and autonomous methods of learning. This will become clear when discussing below the advantages and disadvantages of this method.

## **2. 1. 8 Types of Inquiry Method**

Several types of inquiry method have been described in the literature:

### **2. 1. 8. 1 Guided Inductive Inquiry**

According to Orlich et al (1980, p. 289) in this method the pupils' should progress from specific observations to generalisations; the teacher must prepare all the



materials and visual aids and ask questions to help students to make generalisations. Moreover the role of teacher in this style is to control the elements, the events, data and materials, thereby acting as the class leader. In turn students should concentrate on observations and inferences and respond to the teacher's questions. Orlich et al (ibid.) suggested several steps to aid students in arriving at generalisations through this mode, as follows:

1. The students should discover items from a particular unit of study.
2. Organisation of the learning activities and all materials are to be part of the process of making generalisation for students.
3. Students should be encouraged to write a summary that contains the generalisations.
4. Students should be asked to identify the sequence of the pattern of events.
5. Students should be asked to synthesise the various elements of the pattern of events into a generalisation.
6. Students should be asked to offer proof for their generalisations.

(These will feature in the empirical research later in the thesis).

## **2. 1. 8. 2 Unguided Inductive Inquiry**

Orlich et al (1980, p. 289) outlined this approach by saying that it is similar to the guided inductive method, but here the teacher controls only the materials and simply poses a question; the students also ask questions that come to mind without further teacher guidance. They pointed out that the major elements and processes in this mode are observation, inference, classification, interpretation, formulation of hypotheses and experiment. These elements feature in the empirical investigation later. However the role of the teacher is different here from that in guided inductive inquiry in that his role is reduced in this mode and the role of the students is increased. The teacher works in this approach as 'classroom clarifier' and students must reach a generalisation by themselves. Orlich et al (1980, p. 289) have noted several points about this approach as follows:



1. The students' progress will be to move from specific observations to generalisations.
2. The objective is to help students to be aware of the processes of scrutinising events, identifying appropriate evidence and judging it.
3. Meaningful patterns are student-generated through individual observation.
4. The teacher should encourage each student to share his inferences and communicate his generalisations.

Thus, the students take a more responsible role in this style and they try to share ideas with each other in formulating their conclusions and generalisations.

### **2. 1. 8. 3 Deductive Inquiry**

This approach has been defined as a method of instruction in which principles or generalisations are presented initially and then are followed by the application or testing of these principles or generalisations (Orlich et al, 1980, p. 301). Here most students become accustomed to using the teaching method that provides the rules, then they apply these rules to other situations. Eggen et al (1979, p. 309) indicated that this deductive method has been known as a syllogistic form, which contains two statements called 'premises' and 'a conclusion', for example:

- All teachers are authoritarian.
- Bill is a teacher.
- Bill is an authoritarian.

Consequently, this mode requires students to move from a generalisation to specific examples and to identify logical necessities and inconsistencies. Again this is featured in the empirical investigation.

### **2. 1. 8. 4 Problem-Solving**

Problem-solving was considered an activity in which both the cognitive representations of prior experience and the components of a current problem situation are reorganised to achieve a designated objective (Ausubel, 1978, p. 566). In addition

Orlich et al (1980, p. 315) pointed out that a great advocate of this method was Dewey who discussed it in his publications from 1884 to 1948. In his advocacy of a curriculum based on problems Dewey defined this method as anything that included doubt and perplexity or uncertainty, though "thinking begins in what may fairly enough be called a *forked-road* situation, a situation that is ambiguous, that presents a dilemma" (Dewey, 1933, p. 14). This mode gives students the freedom to formulate the problem and to arrive at one or more solutions. There are several steps in this process as follows (ibid, p. 315):

- 1 Realising the problem.
- 2 Identifying and defining all terms.
- 3 Dividing the problem into component elements.
- 4 Collecting data.
- 5 Synthesising data for creating approximate relationships.
- 6 Making inferences, deductions and generalisations.
- 7 Publishing and presenting the results or solutions.

Moreover, in this method students depend on themselves to identify problems that they should be studying. Obviously, students should implement all the steps to find out solutions, and the teacher works here as 'a great clarifier'. This stands in contrast to the traditional method where teachers usually identify the problem, organise the knowledge, make the inferences and generalizations and present the solutions.

Fisher (1988, p. 16) argued that students could tackle problems in a logical sequence by formulating them in question form as follows:

- 1 What is the problem?
- 2 How can I explain it?
- 3 What can I do about it?
- 4 Which way is the best?
- 5 Have I finished successfully?

This may involve students very actively. The problem-solving method could be suitable for use at all levels, with students of all ages and in all subjects. Gray (1988, p. 20) indicated that, as history by its nature is full of problems, it might be useful to use problem-solving in teaching history. Orlich et al (1980, p. 316) supported the view that this method of inquiry has greater potential for making schooling a more memorable experience for pupils. From this it can be seen that this approach is useful to train students to solve problems in their personal life. This is an important method which features highly in the empirical research.

#### **2. 1. 8. 5 The Suchman Inquiry Model**

This method was designed to stimulate and support inquiry by students and to develop basic processes of inquiry e.g. presenting real problem with discrepant situations, making hypotheses and suggestions (Orlich et al, 1980, p. 319). Eggen et al (1979, p. 106) suggested that this mode is both inductive and deductive in that it employs both types of reasoning and the pupils are actively involved in the solution to a problem. In addition Orlich et al (1980) mentioned that the important feature in this method is the means by which the problem might be presented to stimulate the students. In this method the teacher can use many items such as short, silent, colour, loop cartridge films to show them something that has happened and which contains a 'discrepant event', then they can observe events. Hence the problem in this mode originates from the film presentation. This approach has a number of steps that include the following points:

- 1 Identification of a problem.
- 2 Hypothesising a solution.
- 3 Gathering data.
- 4 Rectifying the hypothesis.
- 5 Repeating steps three and four until a hypothesis is formed that accounts for all the data.



The Suchman inquiry model is similar to Dewey's problem-solving model in that they both apply similar steps. They are different, however, in that problem-solving is used in Dewey's method to arrive at solutions, whereas the Suchman model is used to train students to know the formulations of interpretation, explanation and hypothesis. Eggen (1979, p. 315) indicated that the primary goal of Suchman-style activities is to help students to improve their ability to relate data to the explanations they have formed. The attraction of this approach is that it enables students to infer different contradicted situations.

In summary, these types of inquiry approach employ similar principles of stimulating and encouraging thought processes in students and helping them to be active learners, and of developing teachers' roles as facilitators rather than authoritarian instructors.

### **2. 1. 9 The Advantages of the Inquiry Method**

The educators who advocate this approach have claimed several advantages for it. According to Bruner (1962, 1970), Fenton (1966), and Jones (1979) the inquiry approach may be used to enable students to use their cognitive skills and to learn different ways of problem-solving. Studies conducted by Bruner (1960), Telen (1960), Massialas and Zevin (1967) have shown that pupils, regardless of their age, can be involved in discovering solutions to psychological or intellectual problems and engage in discovery which provides the opportunity:

- 1 To make a leap into that part of the world which is unknown to them.
- 2 To project and speculate intelligently on the basis of limited clues, or underlying principles, or generalisations.
- 3 To develop and refine heuristic devices which can be used in future investigations.

Additionally, students working with inquiry methods in small groups will be learning socially constructive behaviour, improving their motivation, and making the classroom environment more positive (Windrim, 1990, p. 194). As was seen above

(Vygotsky, 1978) the cognitive value of this social dimension is highly significant. Students working in groups will have the opportunity to help, to co-operate and discuss with each other. Qa'ud (1995) in his study about the effect of co-operative learning on students' achievement in geography, found that students in the experimental group who worked in groups achieved higher marks than did students of the control group who learned by the traditional method (p. 134). Other writers such as Gibson (1980) and Sheingold (1987) considered this method is as self-motivating for the students as they need to find answers to questions, solutions to problems. The inquiry approach leads students to be independent learners who have the ability to develop their attitudes and beliefs on the one hand, and, on the other, to gain new knowledge which helps them through their lifetime (Ehman et al 1974, p. 76).

From the preceding argument it appears that inquiry methods have considerable potential to assist students to think independently and develop their thinking skills, to improve their motivation, to render subject matter realistically problematical, to engage in higher order thinking and to facilitate autonomous learning.

## **2. 1. 10 The Disadvantages of the Inquiry Method**

In spite of the claimed advantages of this method in encouraging pupils to participate in the learning process, it nevertheless has some weaknesses or difficulties. Many writers such as Ausubel (1969), Grambs and Carr (1979), and Orlich and Migaki (1981) argued that most inquiry approaches are more time-consuming (and, therefore, more costly) than traditional approaches and teachers must ignore the notion that they will 'cover' a specified amount of knowledge and develop students' thinking skills. To avoid that problem it is may be necessary to reduce the body of the content to be learnt. In addition, the types of textbooks already used in history teaching are based on the traditional approach and have a large content (Jones et al, 1979, p.42). This can be addressed by refining them to be in harmony with the inquiry method and reducing the breadth of their content. Beyer (1971) indicated that:

Using inquiry teaching means that coverage of many topics must be eliminated in favour of depth studies of a few, that a considerable amount of content which is usually covered in many courses must be replaced with new content in depth on a more limited number of topics (p. 161)

This can be addressed by establishing an appropriate content. Another disadvantage of the inquiry approach is that of the availability of different resources, for example, maps, pictures, handouts and transparencies, to motivate students' learning and enhance their learning experience by using a wide range of resources (ibid, p. 166). It seems reasonable for teachers and schools to prepare as many different kinds of teaching resources as they can. However, as long as teachers are accustomed to use the traditional method and textbooks in schools, they will need to be trained in the use of the inquiry approach (Jones et al, 1979, p. 42). If teachers want to be able to use the inquiry approach successfully they should know its procedures, be able to organise and facilitate learning experiences to help their students to benefit from the approach and be inquirers themselves (Beyer, 1971, p. 172). This would be addressed by preparing a good training programme for teachers. The researcher will address this by giving appropriate training to the teacher of the new programme before conducting the experiment which will be discussed later.

### **2. 1. 11 The Procedures of the Inquiry Methods**

To implement a lesson plan in the classroom using the inquiry approach it is useful to identify possible sequences of procedures in this method. Massialas and Cox (1966), Good and Farley (1969), Armstrong (1980) and Zachry (1985) are in agreement over the phases of the inquiry approach which they state as:

- 1 Defining the problems.
- 2 Formulating hypotheses.
- 3 Gathering data and evidence.
- 4 Drawing conclusions by evaluating hypotheses in a new context.

Joyce et al (1992, p. 198) suggest some principles of this approach, as follows:



- The questions should be answered with 'yes' or 'no' to encourage students and not their teachers to be the inquirers.
- The pupils should rephrase invalid questions which might not be related to the problem or which might be ambiguous.
- The students should use the language of the inquiry process. For example, teachers should ask their students to specify the problem, formulate hypotheses and test their conclusions or generalizations.
- Teachers should try to give the opportunity for a free intellectual environment in which students cooperate with each other, giving them freedom and equality in asking and answering questions or raising any ideas that might be related to the problem.
- Teachers should encourage students to prepare support for their generalisation.
- Teachers should encourage interaction among students.

Thus, the steps of the inquiry method concentrate on realizing the problem, providing tentative answers, gathering data, making sure of the evidence and reaching solutions or answers. Clearly, one can see the role of motivation, the importance of giving students feedback about their progress, and the significance of social interaction in these statements, as mentioned above.

In this approach pupils might be working as individual inquirers, enabling teachers to engage some of their students who are responsible, motivated, and intellectually capable of inquiry-oriented investigations on an individual basis (Wilen and McKenrick, 1989, p. 36). Students who are working in small groups in which they interact with each other find it more enjoyable and they ask teachers why everyone does not do it, as they say it makes so much more sense (Kraft, 1985, p. 150), i.e. the motivational factor is high.

This method depends upon the interaction between the pupils as inquirers and the teachers as guides, facilitators and leaders, reinforcing Vygotsky's (1978) view, outlined earlier of the social basis of higher order cognitive functions. The researcher

in the present study will prepare and address some of the above procedures by establishing a new teaching programme as discussed later.

## **2. 1. 12 The Role of the Teacher in the Inquiry Approach**

Teachers play a major role in the inquiry method; without them it would not work. Gross et al (1978) indicated that the inquiry method does not operate without skilful teacher guidance and preparation of relevant motivating materials ( p. 255). Many writers such as Massialas and Cox (1966), Ehman et al (1974), Ericksen (1984), Beard and Isabel (1980), Lindsey (1988), and Rogers (1990) described the staple duties of teachers in this approach: they should help students to be creative, encourage them to make their own inquiries and control the discussion in the classroom. They should help their students to involve themselves in autonomous learning and give them opportunities for social interaction with each other. Concerning the history teacher specifically, Dickinson and Lee (1978) asserted that:

The history teacher must therefore consider how to devise thought-provoking exercises dealing with past events, yet drawing on transactions present in daily life or easily recreated in the classroom. His starting point will be the recognition that abstract connections can be made concrete and specific, that description is not the only way to shape images and structures with which children can engage. Active involvement is an essential prerequisite for effective learning in history ( Dickinson, 1978, p. 122).

From this, the teacher should understand his role as a guide, director, and leader in order to facilitate the learning atmosphere in schools and achieve all the desired educational objectives (e.g. cognitive, affective, and psychomotor) (Bloom, 1956). Teachers here will guide their students in forming themselves into groups, giving them booklists, answering their questions, helping them to overcome any difficulties or troubles, finding different resources, motivating them and encouraging them to be more active in their communication with each other.

To sum up, the traditional method has been based on textbooks, subjects, and pre-set syllabi, no matter what their potential in the teaching and learning process (Bigge and Hunt, 1965, p.460). This precludes student-generated problems. Sorenson (1964) pointed out that:

The traditional school concentrates on subject matter and the passing of examinations. The newer methods do not neglect knowledge, but they are designed also for the personal and social development of the learner. The advocates of the newer methods claim also that the intellectual development of the students experiencing those methods is more functional and effective (Sorenson, 1964, p.483).

Traditional teaching has specified systematic study, thoroughness, competition, mastery, habit, and accuracy (ibid, p. 483) whereas the inquiry method is based on interest, purpose, initiative, planning, co-operation, attitude, and learning in a natural situation (ibid, 484). Teachers should motivate their students to learn by using some of the teaching aids which enable them to understand the lessons simply and concretely, encouraging them to pay attention to classroom activities and giving them the opportunity to be familiar with such materials. There are many teaching aids to help students enjoy the learning and teaching process and to capture their attention, such as video-tapes, games, slides, audio-cassette and transparencies. Further, it can be noted that in the traditional method, students learn a large content while in the inquiry method they focus on different activities. Further, teachers may be flexible in their classroom, for example, they may use the traditional method with some aspects of inquiry method. However the questions which must be raised are: Is any one method better than another? Is any specific method suitable for all subject matter? What is an effective or desirable method?

The concern of this study is to investigate the effect of these two teaching methods on students' attainments and attitudes in the context of teaching history in Saudi Arabia.

## **2. 2 Aspects of Learning**

From the discussion of teaching methods, it has been noted that the students' involvement, attitudes and motivation may play a part in learning. As these aspects are explored in the survey and experimental study, this section includes a review of selected aspects of students' learning.



## **2. 2. 1 Critical Thinking Skills**

One intention of the inquiry method is the development of critical thinking. As has been mentioned in the preceding sections, it is argued that teachers in schools should help their students to use their thinking skills and to be familiar with thinking critically. Teachers should be trying various teaching methods, not only the traditional approach but others which provide opportunities for students to be more actively and effectively involved in learning to become self-motivated. This is desirable in all subjects. The inquiry method encourages pupils to think critically and allows schools be seen as places to teach students how they can use their thinking, particularly critical thinking (McPeck, 1981, p. 1).

These assertions lead to the need to identify the key features of critical thinking.

Many definitions of critical thinking have been provided. McPeck (1981, p. 17) pointed out that teaching pupils to think critically should involve the development of the cognitive and affective domains that include knowledge, comprehension, application, analysis, values, attitudes and feelings, so that when pupils are challenged with a new situation or problem they will try to adopt different techniques to manipulate it and gather relevant information to yield solutions; in that sense students would use their critical thinking (Bloom, 1972, p. 38). Moreover critical thinking will take place when teachers encourage their students to think independently, to explain their reasoning, to make explicit their assumptions, and to distinguish relevant from irrelevant information (Craft, 1991, p. 191). In order to involve students in thinking critically it is necessary to leave them to strive with real problems and issues (Meyers, 1986, p. 8) so that they become accustomed to studying a variety of problems and to finding solutions. In the Watson-Glazer Critical Thinking Appraisal (Watson-Glazer, 1991) the concept includes:

(1) attitudes of enquiry that involve an ability to recognise the existence of a problem and acceptance of the general need for evidence; (2) knowledge of the nature of valid inferences, abstractions and generalisations; and (3) skills in employing and applying the attitudes and knowledge (Watson and Glazer, 1991, p. 29).

It can be seen that critical thinking is considered a part of the scientific approach. Furthermore, using students' thinking skills may help them to enjoy subjects in school. Wesley and Wronski (1965, p. 79) indicated that a pupil who is able to think critically is one who can:

- 1 Distinguish fact from opinion.
- 2 Evaluate the reliability of sources of information.
- 3 Draw inferences from given material.
- 4 Determine the relative significance of information.
- 5 Make valid generalisations.

As we have seen in the previous section the traditional method tends to confine students to passive learning in which they have no chance to ask questions, to comment or to use their thinking in any developed way. To create an active atmosphere in the classroom it is possible for the teachers to use, for example, a one-minute quiz, a half-page summary of important points, or a set of 'puzzle' questions that encourage students to think (Eble, 1988, p. 35). Further, the effective thinker is described as one who is able to deal with problem-solving (a central requisite for the twenty- first century), to criticise evidence, and to be creative and enthusiastic in the pursuit of knowledge and understanding (Craft, 1991, p. 194).

It is clear from the points above that the procedures of the inquiry method are linked with critical thinking techniques. From considering the teaching of thinking skills in general and critical thinking in particular, it follows that it is necessary to rethink the role of the teacher as a lecturer and reconsider the amount of the classroom time spent teaching content, as opposed to the amount spent teaching a process of thought (Meyers, 1986, p. 54). To promote students' critical thinking skills teachers should be familiar with developing students' skills in:

organising, interpreting, and evaluating all information, for example, interpreting maps, tables, reading from newspapers effectively, classifying and summarising some information, asking questions, and arranging events in chronological order (Mehlinger, 1981, pp. 163-4).

It is likely to motivate students to think critically to be able to analyse, compare and evaluate arguments by using a quotation from the primary sources which will help them to get a clear idea of people and things at that time and encourage them not to believe everything that they hear (Reed, 1980, p. 633).

There is a body of research evidence which supports developing critical thinking ability. Rothstein (1960) identified critical thinking skills as follows (p. 70):

- 1 Comparing sources of data.
- 2 Interpreting data, drawing inferences, and finding assumptions.
- 3 Identifying strong and weak arguments.
- 4 Evaluating thinking as to its relative criticalness or dogmatism.
- 5 Developing sensitivity to language and meaning.
- 6 Drawing conclusions from evidence.

He found that students in an experimental group acquired the same degree of critical thinking skills and information as a control group, indicating no differences between the two groups in their critical thinking ability. Lee (1967) aimed to evaluate the gains in certain critical thinking skills of students who had been exposed to a formal problem-solving approach to social studies and of students who had not (pp. 149-174). He concluded that students in the experimental group had a greater mean score than students in the control group on the Watson-Glazer Critical Thinking Appraisal (WGCTA) though the mean score gain was not statistically significant. Students in the control group (those who had not been exposed to problem-solving) registered a greater mean change on the WGCTA than did students in the experimental group (those who had been exposed to problem-solving) though the mean change was not statistically significant (pp.149-174). It seems that there is some evidence, albeit slight, to support the value of training students to think critically.

To sum up, teaching students to think critically should be regarded as very important in today's schools in order to produce students who are open-minded, able to deal with a changeable world, and have the ability to infer, deduce and evaluate. It will help them become used to thinking through matters, and enable interaction to



develop between them and their teachers, and between themselves. In this study, critical thinking skills will be investigated, as discussed later.

### **2. 2. 2 The Importance of Motivation**

Many writers (e.g. Bruner, Vargas, Gibson and Chandler, Sprinthall and Sprinthall) have asserted that it is very important to encourage students to learn, not just for achieving high scores in examinations, but also to enjoy the learning of the subject itself. Vargas (1977) indicated that:

We want to make learning itself reinforcing for our students. They must learn not for a grade or to "please the teacher" but for the enjoyment they get out of learning, for the natural consequences of solving problems, discovering new things, or creating (Vargas, 1977, p. 246).

Motivation plays a significant role in the teaching and learning process because it makes students learn actively and encourages them to achieve success. Students who are motivated will learn more and learn faster than those who are poorly motivated (Hawley, in Yelon et al,1977, p. 295). Moreover students in schools may become bored and lessons may seem tedious if there is no incentive or motivation, therefore they need to satisfy their curiosity, i.e. to develop their intrinsic motivation. Bruner, amongst others, mentioned that students are curious by nature and teachers should give them the opportunity to use their minds more fully, rather than merely memorizing, and to practise different kinds of activity (Bruner, 1966, p. 96). In the inquiry method students can be engaged in different activities such as working in groups, using books and dealing with more than one resource, whereas in the traditional method they are usually engaged all the time in listening and receiving information from their teachers. Motivation means that students enjoy and are interested in their learning activities. Clifford (1981) has described motivation as a state of excitement that causes people to act (p. 349). It influences students' energies, the direction of their behaviour, their needs, interests, values, attitudes, aspirations and incentives (Gage and Berliner,1992, p. 326). It follows that if teachers want their students to increase their learning they should be concerned to motivate them.

One can identify two main types of motivation, intrinsic and extrinsic. Intrinsic motivation refers to students' recognition of the value inherent in the very nature of an activity (Kolesnik, 1963, p. 340), and extrinsic motivation refers to things which students receive from outside, i.e. where the reward or the benefit lies outside the activity itself (ibid, p. 341). Motivation is an important tool in teaching methods. In the traditional approach students are often motivated extrinsically, spending much of their time doing something for extrinsic rewards such as a good mark or commendation from their teacher (Trow, 1960, p. 327). In this case some students may feel hesitant to work in schools and uninterested in the learning process. Trow (1960) commented that most of the problems or subjects which are used in schools have reversed the intention of the textbook writers, and have not been relevant to the students (p. 327).

The inquiry approach on the other hand helps students to be self-motivated as they become involved with problems. This can make them enjoy the learning activities and find out answers or solutions for themselves; i.e. they are motivated intrinsically. Bruner believes that the ideal rewards in learning should be intrinsic to the learning situation itself as in solving a problem rather than extrinsic or external (Bruner, 1966, p. 42). Undoubtedly when pupils discover something or find the answers to problems by themselves they may be encouraged to explore the problem further. Activities which are premised on intrinsic motivation are rewarding in themselves and self-sustaining (Sprinthall and Sprinthall, 1977, p. 312). In this approach it is necessary to give pupils immediate feedback to enable them to improve. Using the inquiry method with its intrinsic motivation can enable students to become actively involved in their learning as they tackle problems and find their solutions. This procedure will help students to recognise their mistakes and try to correct them. This will lead to quicker, more effective learning than would occur if they were simply told they had failed (Sorenson, 1964, p. 414). It is preferable to give students their results immediately without postponing them until the end of the task (ibid, p. 414) in order to let them feel self-satisfaction about achieving their tasks

properly. Schunk (1983) indicated that students who received immediate feedback about their performance learned more effectively than others who had not received such knowledge (Gibson and Chandler, 1988, p. 359). Immediate feedback, therefore, will inform students of their success and encourage them to achieve well in the next steps of their learning in comparison to others who must wait for their examination results. To see the effect of feedback a study was conducted by Plowman and Stroud (1942) among 250 eleventh grade students who were given two objective tests, with each test being given twice. One half of the students were given their papers back with the corrections marked and another half of them were not. After that the groups were reversed to take the second test without the students being informed that they were to be retested. It was clear that students did better on the second test when they were allowed to inspect their correct answers on the first test (Sorenson, 1964, p. 414). On the whole in the traditional method students have to wait until the end of a period or term to find out their results and their mistakes.

In the teaching and learning process students will have positive or negative attitudes toward some aspects of the subject or school, etc.; in that respect students' attitudes represent a basic element of motivation as they are motivated to learn and remember only that which interests them (Sorenson, 1964, p. 411). Frankel (1960) found that bright underachievers, in comparison to overachievers who were matched for IQ, disliked school and most school subjects (Ball, 1977, p.7). McClelland and Steele (1973) have written that:

It is important to provide the average instructor with the kinds of technology that will accomplish the goals, that is, which will convey information simply and vividly, arouse attention, create and sustain an achievement-oriented mood, stimulate fantasy, encourage participation and make self-study easier ( McClelland and Steele, 1973, p. 490).

This explains the importance of using different resources in teaching. As students usually like a subject that is related to their interests and needs, teachers in schools should do much to stimulate their students by making topics and processes in the classroom relevant to their interests and needs, to current affairs, and problems, and to the local and immediate environment (Smith, 1975, p. 337). Motivation is valuable in developing students' self-esteem and teachers should respect students'



efforts and encourage them to enjoy learning (Eble, 1988, p. 187). In the traditional method for much of the time teachers are authoritarian, with students implementing their instructions; in contrast in the inquiry method the role of the teachers is based on counselling, guidance and maintaining students' self-esteem.

Motivation, then, seems important, whether intrinsic or extrinsic, to encourage pupils to learn and to promote students' liking for school and enjoyment of learning in all subjects. It has been argued that intrinsic motivation is more valuable in these respects. Aspects of motivation were therefore incorporated into the present study. Since the interaction between teachers and their students is often based on questioning, it is necessary now to review the importance of questioning in the learning and teaching process.

### **2. 2. 3 The Importance of Questioning**

Questioning performs a basic role in the learning and teaching process; it can be used to accomplish many objectives, such as to satisfy the students' interest, to help them to discover the world around them, to develop their thinking skills and to find answers to their problems. Questions can be used to:

arouse the curiosity of the students, to motivate them, to search out knowledge, to challenge their minds, to stimulate their imaginations, and to help clarify the ideas and concepts of lesson (Dobkin et al , 1985, p. 37).

Thus, questioning is considered a useful instrument to provoke pupils' thought in every lesson, in every subject, with a variety of teaching methods in general and with the inquiry approach in particular; it has an essential part to play in encouraging pupils to think. This is particularly true of a type of question that actively promotes pupils' thought, known as thought questions which need reflection, sustained answers, explanations, comparison, contrast and opinions (Dobkin et al, 1985, pp. 38-9). Also it is preferable for teachers to use provocative questions such as puzzling incongruities to stimulate pupils to study and extend their learning (Yelon et al, 1977, p. 307). It is worthwhile to elucidate those types of questions which will present all pupils with a solid ground to think precisely, extensively, and critically. Using

questioning may serve several purposes in the educational process as follows (Brown and Wragg, 1993, p. 4):

- To focus attention on a particular issue or concept as in the guided inductive inquiry.
- To develop an active approach to learning.
- To stimulate pupils to ask questions of themselves and others as motivation factors.
- To diagnose specific difficulties inhibiting pupil learning.
- To communicate to the group that involvement in the lesson is expected, and that participation by all members of the group is valued.
- To provide an opportunity for pupils to assimilate and reflect upon information.
- To involve pupils in using inference on the assumption that this will assist in developing thinking skills. This seems to be related to the critical thinking skills.
- To develop reflection and comment by pupils on the responses of other members of the group, both pupils and teachers.

It seems that the preceding points are particularly related to the inquiry and problem-solving approaches and their procedures for finding solutions, though they may to some extent apply to the traditional approaches.

Students can be hesitant to ask questions if they have been used to the traditional method that denied them practice in using questioning and answering skills, so that they are intimidated when asked specific questions (Cook, 1992, p.36). The traditional procedure inside the classroom has required one-directional talk where teacher (a) questions student (b) who answers and teacher (c) evaluates the answer and puts the next question (Dillon, 1988, p. 13). This suggests that teachers should bear in mind the sequence of their questions when attempting to promote classroom activity. They should encourage their students to ask questions of themselves and of each other, and enable them to be engaged not only in questioning, but in formulating

their own questions and deciding an appropriate ones for their study (Orlich, 1980, p. 283). In relation to the inquiry method, it should be beneficial to use (1) inductive questions that enable students to concentrate on specific points in order to infer generalizations, and (2) deductive questions that encourage students to apply generalizations or principles to specific situations. By using a variety of open and closed questions, low and high order questions, pupils should be enabled to identify issues, state hypotheses, clarify, probe and resolve situations (Dobkin, 1985, p. 48).

Questioning also can be used for the following (Clark and Starr, 1981, pp. 172-3):

- Working out something that one did not know.
- Working out whether someone knows something.
- Motivating students' learning.
- Stressing important points.
- Concentrating on relationships, for example cause and effect.
- Exploring students' interest.
- Developing appreciation.
- Gaining 'the attention of a wandering mind'.

These are not specific to only one subject but may apply to different subjects such as history, geography, science and mathematics. In addition, they appear related to the inquiry method in achieving their purposes.

Teachers should generally welcome students' questions at any time. When we compare the situations of teachers and students with regard to both the traditional and inquiry methods, the following differences become clear.

In the traditional method teachers ask their students questions to check their understanding and assimilation of what they know (Brown and Wragg, 1993, p. 27). If students ask questions then there will be one specific answer from the teacher and most of the time there is no possibility of sharing ideas with other students in answering the question. Further, most questions in the traditional method demand that students recall facts. Teachers using the inquiry method differ from teachers using the



traditional method in that they encourage their students to ask questions, and when a student asks a question, the teachers does not give him a direct answer but encourages him to work with other students to find the answers using different sources. Teachers here use different kinds of questions that provoke students' thinking and encourage them to participate actively.

From these general arguments, it can be seen that in teaching history, questioning is likely to be important because it provides a useful way for students to present and think about historical problems and help them to work out ways for solving them (Mbenga, 1993, p. 23). Students are required to use different types of primary and secondary resources to find answers or solutions based on the historical evidence. Smith (1990) suggested that the questioning approach could be used in history to help students identify problems, use different sources, interpret historical information, and generally synthesise, arrange and organise their work (p. 6).

Consequently, it seems that asking questions in the classroom plays a central role in provoking students' thinking, making them good participants and encouraging teacher-student interaction as well as students' interaction with each other. This will be borne in mind in the empirical research when preparing the new teaching programme and in the survey questionnaire.

### **2. 3 History and the Teaching of History**

The following section outlines aspects of history and history teaching which are relevant to an appreciation of the way in which it is explored in this thesis. A clear structure is difficult to create since the two issues of the nature of history and methods of study and teaching are intimately interrelated. It is the author's belief that history as a subject needs to be made more attractive to students in school. As this study is concerned with history teaching, it is appropriate to examine the nature of history itself as well as the nature of history teaching.

### 2.3.1 The Nature of 'History'

History is generally viewed as a knowledge of the past. There are, however, different views about the meaning of history and the nature of history. For example, at the time of Herodotus, the Greek writer and the father of history, history was considered as a kind of narrative inquiry. The word 'history' is derived from the Greek word *Historia* which means inquiry. The word can be used to define the procedures of the inquiry. History has been seen either a science, dependend on observation and the recording of information, or as an art, based on the interpretation of this information (Hardwick et al, 1967, p. 4). In this sense, historians may tend to ask Why? What? Who? When? How? To what end? Why did that happen this way and not that? and they try to investigate the evidence. It is hoped that this will lead them to gain an understanding of the events and be able to form generalizations and conclusions (Sturley, 1969, p. 2). These kinds of questions may explain some aspects of the inquiry approach.

Collingwood (1946) defined history as man's self-knowledge, guiding him to know himself as distinct from others. Collingwood indicated that:

Knowing yourself means knowing, first, what it is to be a man; secondly, knowing what it is to be the kind of man you are; and thirdly, knowing what it is to be the man you are and nobody else is. Knowing yourself means knowing what you can do; and since nobody knows what he can do until he tries, the only clue to what man can do is what man has done (p. 10).

This points to the importance of history in enabling people to have self-knowledge. Marwick (1970) supported Collingwood's view. He also pointed out the Toynbee's idea about history when he viewed it as a comparative study to address the differences in societies and cultures through studying the past (ibid, p. 84). This may indicate that history will explain the changes which have occurred in different societies.

Burston et al (1972) viewed history as studying the developments of the present and using some events of the past which have contributed to form the present; i.e. to contrast the present with an imaginative reconstruction of the past. People tend to learn much from these comparisons, and in this sense history is considered

important for education. An appreciation of the different social laws underlying past events may provide a guide to understanding and dealing with such events or problems in the present. In this view, history here may be identified with sociology (p.7). Thompson (1982) made the same point and added that history is a record of change and it is based on evidence (pp. 20-21). My impression is that this addresses the importance of past events to the present.

Chaffer and Taylor (1975) indicated that the definition of history may be influenced by the viewpoint of the researcher. For example, professional historians often define it as 'a process of activity' which includes the general process of defining the problem, finding the evidence and evaluating it (p. 23). This indicates that historians aim to study the problem from inside (p.23). The epistemologists' concern was that history has a unique place in school as Chaffer and Taylor (1975) pointed out in the following arguments:

Professor Hirst justified the place of history in schools by indicating that it should exhibit a particular mode of perception: 'a distinct way in which our experience becomes structured around the use of accepted public symbols'. From this definition he argues seven distinct 'forms' of knowledge: history, the human sciences, mathematics, the physical sciences, religion, literature and the fine arts and philosophy (p. 23).

This may indicate the important place of history in school. Other writers such as Perkin (1970) and Vaudry (1989) viewed history as the accumulated experience of the past. Perkin (1970, p. 2) indicated that:

History is the summarized experience of society, as experience is the condensed history of the individual. Without experience the individual is as lost as a baby without a mother, a learner driver without a qualified passenger, a potholer without a torch (p. 2).

It can be seen that the human experience in the past plays an essential role in history. In addition there are different views about the meaning of history today. Contemporary historians view history as a record of human experience in the past and present in all fields (Krug, 1967, p. 4). In addition, Saul (1994) indicated that history may guide students in a useful way to know what is to come, by enabling them to identify some possible future events and the probabilities of these occurring (p. 46).

Other features in the development of the nature of history are (1) the emergence of different sub-histories, such as, economic history, intellectual history,



diplomatic history and new history (Marwick, 1970, p. 61). (2) Moreover, more recently new historians and relativists have asserted the importance of the present in order to know the past (Marwick, 1970, p. 89). (3) The approach adopted by some historians has led to the use of scientific methods in the collection and analysis of evidence.

One argument which has been raised with regard to the nature of history as studied in the context of recent European history, is that history may be viewed as a science and should use scientific method. The purposes of the historian and his focus of interest may often lead to the use of scientific approaches and techniques in historical studies. These scientific approaches draw attention to the use of evidence and first hand sources as well as careful reasoning and systematic study. However, some approaches to history emphasise or recognise the relativity and values involved in studying aspects of the past. The controversy about history is deemed beneficial for the following reasons (Marwick, 1970, pp. 213-214):

- Historical controversy promotes the dialogic aspects of history between the past and the present, and between the historian and the reader.
- Historical controversy addresses the nature of historical sources and historical methodology, and it presents some aspects of the basic criteria on which historians have agreed.
- Historical controversy enables people to follow different procedures in looking for the truth of the past.
- Historical controversy stimulates other historians to have 'bright ideas' by following different aspects of criticism and discussion.

From this it may be seen that any controversial issue may lead people to find the right ways, resources and evidence. Further, there are problems concerned with teaching history and difficulties with which the history teacher may be confronted. For example, in using the language of the primary sources such as documents, history teachers should be aware that some words in the documents may now have different meanings. In addition history teachers may be faced other problem related to the

abstraction of using different words at different levels (Burston, 1972, pp. 44-45).

Burston (1972) pointed out that:

Thus, the teacher of history has a special difficulty in the use of language. First, he has to consider the words as they are today, secondly, the words as they were, and finally, the words as they appear to pupils (p.44).

Whatever their view of history or the most appropriate methodology for its study, history teachers must exert themselves to organize their subject material, and to select and revise the language, putting it into clear and suitable terms for their students. Since history is concerned with the past, it is viewed in different ways whether by historians or philosophers. In this sense students should be trained in the skills of historical understanding and taught to study the evidence. Cooper (1992) addressed this where she stated:

History is dynamic. In learning about the past through secondary sources, children will discover that accounts differ, and in asking their own questions about primary sources, they will begin to discover why. It is important to social and intellectual development, not solely to historical understanding, to realise that argument must be supported and that there is often no 'right' answer (p. 11).

Another view of the nature of history relates to reasons which may encourage students to study history. Partington (1980) identifies three reasons. Firstly, history as the transmission of heritage: one of the most important reasons to study history is to implant in students a respect for the past of their societies or nations. In the light of the distortion of the past which may happen, it has been noted that heritage has been out of favour in the past twenty years. Secondly, history as an aspect of moral values: students study history to acquire moral values from the past, although this is accorded little importance in Britain. Finally, history as a means of understanding the present: knowing the past is considered important to enable students to understand their present and to some extent to predict their future (pp. 10-12). Of all the various views of history reviewed here, this final example seems to represent most appropriately the characteristic of much of the history syllabus and teaching in Saudi Arabia.

Thus, in that cultural context, history should be concerned with understanding the past in the light of the present and it should be focused on current or contemporary history and scientific approach. History may be considered a tool to seek the truth

about historical events, so it applies scientific procedures and the skills of inquiry to reach to the truth.

### **2. 3. 2 History Content**

From the preceding discussion, it is predictable that the content of a school history syllabus may be problematic. In addition to balancing the purposes for study with the different views taken of history and the different methods of study advocated, it is necessary to take into account the characteristics of the students. Chaffer and Taylor (1975) indicated that the relevance of the content to the students' interests should be taken into account (p.35). Further, transmission of heritage, which represents the main concern of teachers, should be reflected in the syllabus (ibid, p. 35). This supports Partington's view. The Assistant Masters Association (1975) identified a number of factors germane to the construction of any syllabus as follows (pp. 13-16). Firstly, the age of the students is important so as to provide them with an age-appropriate syllabus. Secondly, there should be a suitable amount of time available to teach the syllabus. Thirdly, it is necessary in constructing the syllabus to bear in mind the availability of different resources such as books and audio-visual resources. Finally, sensitivity and imagination should be used in including different sections about different communities. From this it can be concluded that some of these elements should be addressed in establishing any history content in particular and any content of other subjects.

In constructing a syllabus, attention should be paid to striking a balance. Edgington (1982) indicated that it is appropriate for the syllabus to find a balance between local, national and global history, between the use of secondary sources, primary sources and physical evidence, and between dramatic events and significant personalities (p. 4). Further, Chaffer and Taylor (1975) added that it should be necessary to identify 'criteria' for selection which includes the value of history and the aim of teaching it in schools (p. 36). This may explain the importance of the content of history teaching.



The traditional curriculum content in history has been criticised for its 'dullness', relying on the memorization of facts and dates, and for the 'impersonality' of the approach which focuses on the growth of the nation state (Chaffer and Taylor, 1975, p.38). Students may, therefore, find lessons dull and irrelevant and this impedes their enjoyment of history. It seems also that the aim of heritage represents another problem or difficulty of the traditional syllabus. As Chaffer and Taylor (1975) pointed out, students and teachers considered the past very remote and they may feel that it is irrelevant to them (p. 43). This may sometimes discourage students' enjoyment.

### **2. 3. 3 Studying History in Schools**

Having discussed general pedagogical principles and their links to this thesis, this section now sets them in a substantive curriculum. History teachers generally indicate that there are various teaching methods that enable them to teach history in a number of ways. Why is history taught in schools? Here are several reasons for studying history (Nichol, 1984, p. 7):

- a The study of history is an essential part of our cultural heritage.
- b History contains a great deal of literature.
- c History makes pupils into good citizens and loyal supporters of the nation.
- d The historian deals with important ideas and concepts which every child should understand such as change, continuity, cause and consequences.
- e History fosters empathy (the ability to understand how other people think and feel, and their position and roles in society).
- f History develops a wide range of educational skills such as comprehension, analysis, synthesis and extrapolation.
- g History develops the acquisition and use of language.
- h History is a valid discipline (a unique process of enquiry which every child should experience).

Other writers such as Blyth (1966), Slater (1978), Killingray (1987) and Carrier (1987) have also identified and stressed elements in this list. They reflect an

appreciation that history carries within it the potential for learning and understanding for more than the past events and experiences defined as 'history'.

These points are not limited only to history but can also be applied generally to other subjects. It can be seen that some of these points may have different interpretations, for example, 'cultural heritage' in Britain may refer to different cultures. In the National Curriculum, this has been revised as follows: 'to give pupils an understanding of their own cultural roots and shared inheritance' (p. 1). This aspect of studying history in schools may be identified in Saudi Arabia where the intentions of history teaching are to develop in particular Islamic principles and values, heritage, different skills, empathy and to help students to be good citizens, as will be shown later.

With respect to points a, b, c, and e above, it can be noted that they have been identified in the Saudi syllabus, whilst points d, f, g, h are not so easy to identify very clearly. With regard to point c above, studying history is important since, if any nation neglects its history, it will be in a state of confusion when planning its development; i.e. the continuity gained from studying the past is very helpful to guide the development of a broader past and present perspective (Partington, 1980, p. 5).

Studying history has played a central role in the discipline of students to develop their understanding and thought about the human condition (Beer and Blyth, 1991, p. 5). History studies can also give students ample opportunity to appreciate the interrelationship of cause and effect, and to judge the relative importance of different causes (de Marco and Medley, 1989, p. 16). In addition, the study of history fulfils several purposes. Garvey and Krug (1977, p. 2) explained that the study of history furnishes students with opportunities to know historical facts, to understand and appreciate past events, to develop the ability to evaluate and criticise these events, and to practise the techniques of historical research. They stated the historians' working and this may differ from Nichol's viewpoint which is focused on social, personal and cultural aspects of history. Teachers should help their pupils to make sense of history and to acquire historical skills, enabling them to be active in thinking about events.

Students should not just accept facts at face value, but be taught to use historical methods, including gathering data, looking for evidence, interpreting and formulating the results (Hurst and Shepard, 1984, p. 205, Duthie, 1989, p. 136). Other writers such as Johnson (1978) and Pluckrose (1991) see historical studies in school as designed to develop and extend a pupil's understanding through many activities that will enhance and deepen his awareness of historical enquiry. Other writers such as Mays (1974) and Evans (1975) supported the aim that history should allow students to develop their intellectual, emotional and historical research. In teaching history it is possible to stimulate students to think in critical ways. Many writers addressed the importance of this objective such as Wesley (1965), McBride (1989), Rogers (1990) and Fogarty and McTighe (1993).

In a debate which was presented in 1987 about 'what sort of history for the core', Cooper pointed out that it is essential to provide a curriculum which enables continuity, promotes development, and provides measure for assessment. Further, she argued that such a curriculum should be based on cognitive development rather than on content in order to develop students' intellectual and emotional capabilities (p. 25). This may indicate that she viewed the cognitive development in history more than the content and this differs from Nichol's list which gave the content greater emphasis. Moreover, with regard to the place of history in schools, Fines participated in this debate by emphasizing that (p. 26):

'History should be central, substantial and flourishing because it holds its place entirely according to its ability to serve the higher needs of education, the goals of the whole school'(1987, p. 26).

Morrill expressed his belief that students should recognize 'historical logic' and he asserted that history should be part of the core curriculum for all school students (p. 27). So, having a knowledge of history is necessary for students in order to aid their self-development. Her Majesty's Inspectorate (HMI) (1985) argued that students should have at least some aspects of historical knowledge.



Without an historical perspective, we lack a crucial way of looking at and understanding human society. Thinking about the past must be part of our concern for the present and future. In this way, history contributes to the personal development of ourselves and our pupils, and to the general education of us all (p. 1).

History can help students to be autonomous in their personal life through choosing their own goals, and it helps them to understand how different aspects of their society e.g. socio-economic, artistic and ethical, have evolved (White, 1994, p. 7). Edgington (1982) supported Nichol's statement that history can make a valuable contribution in schools by enabling students to understand themselves better and to appreciate the achievements of other societies (p. 4). It may be noted that through history lessons it is possible to encourage students to use their inferential reasoning (Fines, 1981, p. 8). This agrees with the viewpoints of Garvey and Krug. Moreover, it should never be said that history is a purposeless subject. In a study which was undertaken by Harries in 1975 about teachers' conceptions of history teaching, he found there were no statements that history was valueless included in the teachers' responses and, further, teachers stated that the most popular purpose of history was 'to develop understanding of how the present evolved' and half of them had chosen history for interest and enjoyment (p. 151). My impression is that this will make history's place in the curriculum quite valuable.

More than 500 teachers attended the different seminars which were held between November 1975 and October 1979 in different parts of England, about 'Examining History at Sixteen'. Data collected at the end of the seminars included teachers' perspectives of the objectives of history teaching which have been categorized as follows (pp. 6-8): pupils' attitudes, formation of concepts, heritage, fostering imagination, providing intellectual discipline, developing knowledge, satisfying students' personal interests, developing different skills and helping students to understand their society (Carpenter, 1980, pp. 6-8). These objectives seem to support the viewpoints of Nichol and Garvey and Krug to view history as important for social and personal aspects, and for the historian's approaches.

In short, it can be seen that history is a valuable school subject which can be used to achieve different purposes. In addition, the reasons for studying history and

students' responses to the subject may be linked to the different broad approaches to teaching outlined earlier in this chapter, such as the inquiry method. These links are explored more precisely in the investigation carried out in Saudi Arabia.

## **2. 3. 4 Approaches and Methods of History Teaching**

It is helpful to consider methods and approaches of teaching history in the UK as a framework for understanding the direction of the research in Saudi Arabia. It can be noted that some writers used the term 'methods', others used 'approaches' and others combined them, so the researcher will use both terms, as the distinction between them is not great. Several different and new approaches which have been advocated in history teaching have been identified by Chaffer and Taylor (1975) as follows:

- a Understanding the present: this was formulated through a reconsideration of the conventional approach. Chaffer and Taylor (1975) stated that this approach is similar to the contemporary history approach which has been established by the professional historians (p. 44). Further, in order to make the history subject relevant to students, it should be presented in terms of their world (Pollard, 1973, p. 2).
- b The thematic approach: this approach is based on selecting as themes different concepts or terms rather than historical periods. Davies (1972) indicated that this approach with its abstract concepts can be used with older students and it enables students to interpret and explain events in terms of general laws. Further, it eliminates notions of time and chronology (p. 71).
- c The social sciences approach: This has sprung from the assumption that history can be used to study the present, which has been described by Chaffer and Taylor (1975) as a direct purpose of the social sciences (p. 46). It is considered more integrative than the thematic approach.

In addition to the previous approaches, there are other approaches which might be used in a history syllabus, for example, the world history approach which enables

students to reinterpret 'heritage' in a holistic sense (ibid, p. 48), and the evidential approach and discontinuous syllabus, which is based on selecting different activities suitable for teachers and students (ibid, p. 50). Moreover, some historians argue the possibility and the value of using different approaches:

### *Chronology Approach*

Widely used in history, the chronology approach is considered essential in history based on evolution or continuous development (Steele, 1976, p. 45). The syllabus of this approach relied on presenting the development of events through past ages and helped students have a sense of time.

### *The Patch Approach*

The first advocate of the patch approach was Peter Carpenter in his 'Era Approach' (ibid, p.39). Chaffer (1973) explained this approach as follows (p. 54):

The essence of this is to show history as 're-creating the living past'; to restore first of all the concerns of history for the human and the particular, which are surely at the root of most people's imaginative involvement with the past. As well, the limitation in time allows a 'cross sectional' analysis which attempts to relate the different aspects of life at the time, while the particular nature of such studies gives opening for enquiry-based work at a limited and concrete level of interpretation (p. 54).

This kind of syllabus includes a detailed, in-depth study of a limited period. Steele (1976) indicated that the patch approach demands a good understanding from students, hard work from teachers and the use of different resources (p. 46).

### *The Line of Development*

This approach was worked on by Jeffreys in the 1930s. Chronology is considered essential to this approach (Steele, 1976, p. 47).

### *The New History*

The 'new history' approach was developed to meet the criticism that traditional education is too passive. A 'new history' syllabus has been advocated based on giving less attention to the content and putting more emphasis on the learning process (Jones, 1973, p. 14). This 'new history' is related to the inquiry method. Jones (1973) explained that the new history is:



what is popularly called the enquiry method. Through it, the young and developing mind is led to acquire information and perceive relationships, to draw conclusions and make extrapolative leaps - not in any haphazard fashion, but through material that is tightly structured and presented either as an explicit problem or as a predetermined sequence. The child is thus taught the skills of the historian and comes to think historically, not merely to regurgitate data and ready-made conclusions (p. 14).

This new history stresses the methodology of using different resources and approaches and studying the evidence. Wilson (1983) indicated that it might be appropriate to pay attention to a coherent approach in history which is based on two issues: method and content (p. 33). This will strike a balance between the quantity of knowledge which students should be taught and the development of different skills. This may promote students' thinking skills.

In addition, different kinds of syllabus have been advocated by different writers. For example, these include local history and national history (Partington, 1980, pp. 121-127).

The local history syllabus is based on students' direct experience as they study what is relevant to them e.g. their city, street and environment (ibid, p. 121). In addition, a national history syllabus is used for the following reasons (ibid, p. 125): firstly, students like to study their country to understand it better and, secondly, national history is viewed as being more relevant to the students' needs as citizens.

One of the main concerns of history teachers is that they wish to see their students learning to integrate different experiences and apply them in new situations (Partington, 1980, p. 208). This can be developed through integrated or interdisciplinary lessons in schools.

The National Curriculum which has been recently implemented can be seen to contain many of the aims mentioned in the discussion above (History for ages 5-16, pp.1-2) such as, to help students to understand the present in the context of the past; to arouse interest in the past; to give pupils a sense of identity; to give pupils an understanding of their own cultural roots and shared inheritance; to help them to understand other countries; to train their minds by means of disciplined study; to introduce pupils to the distinctive methodology of historians; to prepare pupils for adult life; to secure high standards through breadth of coverage, balance of approach

and coherence of structure. Moreover, it can be seen that the attainment targets of the National Curriculum emphasize the importance of equipping students with historical knowledge and understanding, using different historical resources and studying different historical questions (ibid, pp. 34-35). Further, the National Curriculum explains the key elements which can be addressed in history at all stages, as follows: chronology, range and depth of historical knowledge and understanding, interpretation of history, historical enquiry and organisation and communication (History in the National Curriculum, 1995, p.3). It may be noted that the National Curriculum tried to include different aspects of historical studies and approaches.

With regards to history teaching, Colledge (1983), for example, identified different aspects of the teaching method which have been used in history lessons (pp. 27-28): He states that since long ago stories have been used to describe how people behaved, for example, in biographical stories. Drama narrative was also used, as was the traditional approach which was widespread in history teaching. By the twentieth century the local history and scientific approaches had become popular, taking into account the importance of causation. Making use of evidence and asking questions have been recommended to enable students to analyse and construct ideas or plans. It may be helpful to explain briefly the approaches of biography, story and drama as follows:

### *Biography*

This approach was adopted by the professionals. Marwick (1970) described it as a complete picture of a particular structure which has been built according to a large number of individual biographies (p. 203). This indicates that the biographical approach is based on different information about an individual's behaviour and actions. The biographical approach has been viewed as useful in history teaching to give a range of historical information from the past by taking individual action as a focal point. Marwick (1970) indicated that without biographical study most historical information would remain unknown or unclear (p. 204). It can be seen that this is matched to the history content in the first year of secondary school.

### *The Story*

Using story in history teaching is considered interesting because it satisfies students' needs to know different accounts of different historical events. Farmer (1990) viewed story-telling as parallel to history because many of the great historians were great story-tellers (p. 18). The story approach can increase students' interest and enjoyment when teachers talk about different events which have happened in the past, e.g. why this happened and what happened as a result (Farmer, 1990, p. 18). Low-Beer and Blyth (1991) indicated that using stories of the past provides a problem, adds complications, and resolves this problem (p. 21). In addition, to use the story effectively in history teaching, it should be prepared well and students should be enabled to play some roles in it. Low-Beer and Blyth (1991) pointed out that to make story-telling successful in history teaching it is important to take into account harmony within the story itself, the qualities of the teacher as a story-teller and the nature of the audience (pp. 19-20). It can be seen that the story approach enables students to imagine historical events and to develop their skills of problem-solving. Further, in this case, the story approach is considered part of the inquiry method. With regards to using the story in history teaching in Saudi Arabia, it can be noted that teachers rarely used it in their teaching because, as mentioned above, it needs to be prepared well.

### *Drama*

Using drama in history teaching is considered useful in order to help students to see past events in a meaningful way (Wilson and Woodhouse, 1990, p. 7). Drama aims to enable students to play effective roles in learning and teaching. Barlow and Isenberg (1970) pointed out that using drama in history lessons enables students to satisfy their play instinct as a means of learning in schools (p. 303). Students in this manner will be given the chance to tackle a problem and, by playing essential roles, to solve it or reach conclusions. This will stimulate students' interest, enjoyment and their historical understanding (ibid, p. 308). Drama has not been always used in Saudi



schools because there is inadequate time and teachers may lack the awareness of using it in history lessons.

From the previous approaches of biography, story and drama, it can be noted that they are seen as a part of the inquiry method but they are different in their application or procedures. Further, in the present research the writer will not use them because students in Saudi Arabia are not familiar with them, suitable facilities in schools are often not available and there is insufficient time.

From this, it is clear that it should be appropriate to provide a different content in history which satisfies students' needs and to use different teaching methods. As the traditional method and inquiry method have been discussed earlier, it is appropriate now to discuss other methods and approaches to history teaching.

#### *The source approach*

This method, advocated by Dr. Keatinge as long ago as 1910 (Palmer and Batho, 1981, p. 5), is based on written documents and archives. It has been defined as 'anything which puts one into direct contact with the past' (Assistant Masters Association, 1975, p. 83). Teachers should be very careful in using this source method and they should prepare for their source materials in accordance with their students' needs. Palmer and Batho (1981) advised teachers who intend to use this method to take into account the following points (p. 8):

- They should specify the time when they will use the materials source.
- They should explain their procedures to their students.
- They should prepare the information that students will infer or derive from a source.

The attractions of this method are that it can be used to motivate students to solve historical problems and to develop their thinking skills. In spite of this, students may feel bored when using this method if they do not know how to use it effectively, so it is appropriate to help them to read the documents, understand their content and compare one with another (Plamer and Batho, 1980, p. 15). This method is appropriate for secondary school students who will be able to practise different

aspects of this historical method. Garvey and Krug (1977) indicated that using the source method provides students with research procedures in that:

... in using primary sources in classroom exercise, the pupil is in no sense 'doing research'. He is examining prepared documents which have already been worked over, edited, and published very often with an educational use in mind. But his mind does move, with assistance and no matter how clumsily, through the process of historical discovery and by such activity he develops thinking skills of the historian (p. 39).

This method, it is argued, can be beneficial in helping students to think of past events in a concrete way and in motivating them to be active through their engagement with the different practices of the scientific method.

### *Using pictures*

There are different kinds of visual resources which might be useful in history teaching, for example, pictures, photographs, and filmstrips. It has been recommended that history teachers should use pictures in history lessons to enable students to imagine past events concretely, to practise the skills of imagination and to answer their historical problems (Garvey and Krug, 1977, p. 27). Further, pictures can be used in various ways in history lessons as Garvey and Krug (1977) indicated. They can be used to achieve many purposes, for example, to introduce and illustrate new topics, and to help students make discoveries for themselves before giving them more information (pp. 28-29). Unwin (1981) indicated the advantages of using pictures and other visual sources as follows (pp. 19-25):

- They promote students' aesthetic and physical skills.
- They can help students to develop their perceptual and conceptual skills.
- They enable students to have lasting impressions.
- They enable students to realize the differences related to colour, shape and style, this will stimulate their inquiry.
- They enable students to practise scientific skills from observation to explanation.

Using the pictures in history teaching has advantages, not least in capturing students' attention, but demands that teachers prepare themselves well, and take into account the development stage of the students (ibid, 1980, p. 50).

### *Simulation and Games*

In this method students play a central role in simulating situations and acting different character roles from the past (Nichol, 1980, p. 5), It is an approach based on role-playing and decision-making (Chaffer and Taylor, 1975, p. 87) and can be used to fulfil many purposes in history lessons. Nichol (1980) indicated that this method enables students to develop their imaginative, sympathetic and empathic work and helps them to overcome classroom problems, in that:

...it involves the pupil in human situations, it generates a high level of enthusiasm and interest. The less able can fully participate, and gain some understanding of situations previously beyond their grasp. This is reflected in a higher level of reading and writing. It provides scope for introducing a much greater element of expressive and poetic writing - a welcome relief from the domination of note making and essay writing, particularly at their own speeds. Simulation has the social benefit of actively fostering contact and co-operation between the pupils (p. 9).

In addition, simulation is considered different from games as Birt and Nichol (1975) pointed out:

The difference between a game and a simulation is related to the accuracy of the historical framework. The simpler and less realistic the framework used, the nearer to gaming: the closer to the historical actuality, the greater the element of simulation (p. 13).

Milburn (1972) indicated that simulation is also considered beneficial for slow learners or gifted students because it motivates them to participate more fully (p. 238).

From this it can be seen that simulation and games can help students to enjoy history lessons and participate actively and effectively in the classroom. However, the use of this method may be obstructed by different limitations of the school timetable and the content of the syllabus (ibid, p. 9).

### *The Interrogatory Approach (Questioning) in history*

Having discussed the importance of questioning in the learning and teaching process in general in the previous sections, it is now necessary to illustrate its importance in history lessons. This procedure is based on students' questions, problems raised about the past and the explanations derived by students from the sources (Smith, 1982, p. 35). Further this approach enables students to establish positive attitudes towards history through questioning and using different resources, in other words to help them to become self-reliant students of history. Moreover,



practising different aspects of questioning assists students in organizing their reading and answers, and encouraging them to be active, alert, and critical of evidence. It helps them to infer the real meaning behind the words, to guide them in note-making activities, to arrange their notes and to be involved in the skills of historical analysis (ibid, p. 35). In this approach students can be asked to write a list of questions which relate to different topics or issues. Garvey and Krug (1977) listed the following kinds of questions which can be used in history lessons (pp. 49-51):

- Comprehension questions which require students to recall, translate and understand information.
- Interpretation questions in which students may be asked to compare or relate the evidence to their knowledge.
- Extrapolation questions in which students may be asked to conclude and infer from the evidence.
- Invention questions which help students to think themselves into historical situations and practise direct imagination.
- Evaluation questions in which students may be asked to judge and assemble the evidence to support their arguments.

From this it can be understood that questioning plays an important role in history lessons as it does in all subjects as mentioned in the previous section.

### *Using textbooks in history*

Textbooks are continually used with students and still represent the main resource in history teaching. They can be used in fruitful ways because they contain useful information which has been written in a simple way suitable for students, and they include different pictures, maps and charts. Textbooks are considered an appropriate resource for learning and students should be motivated to use them (Garvey and Krug, 1977, p. 58). In Saudi Arabia using the textbook is essential for students, for example, to read the lesson and answer their homework.

### *Note-making*

History teachers should help their students to write history notes in the classroom not only as an aid to passing examinations but also to achieve different objectives, giving them practice in the skills of categorizing, classifying, summarizing and extracting information from what they read (ibid, p. 70). Indeed this will help students to be very careful in their reading and in collecting important or appropriate information which can be used later. This skill may not exist in Saudi schools.

### *Studying Maps in history*

Maps are a resource which can be used in history lessons to illustrate different aspects of history, and students need to be guided to benefit well from them. In fact, studying maps in history enables students to study the evidence, compare geographical information with historical events, observe and learn for themselves (Garvey and Krug, 1977, p. 83). Different types of map can be used in history lessons, such as historical maps, standard geography maps, maps prepared for class exercises, wall maps and chalkboard maps (ibid, pp. 84-85).

### *Project method*

In this method students may be asked to select a topic or assignment and to work on it individually or in groups. Garvey and Krug (1977) pointed out the advantages of this method in the following (pp.106-107):

- Using the project method can help students to have the freedom to choose their work.
- They will work under the guidance of their teacher.
- Using this method enables students to develop interconnected study skills e.g. finding information, formulating hypotheses, using their imagination, extracting the appropriate information, checking the evidence and organizing their findings. Students can also obtain insight skills.

In spite of these advantages this method has some disadvantages which may be summarized in the following (ibid, p.107):

- This method demands very hard work from students and teachers.

- There is the difficulty of finding realistic research topics related to the resources.
- Teachers need to make more efforts to overcome these difficulties.

It is clear that the project method involves active and effective participation from students and this will encourage them to enjoy history lessons.

History teachers should have the desire to improve their teaching by using different teaching methods and resources and involving their students. Jannifer and Tucker in the debate about 'what sort of history for the core' held in 1987 indicated that history teachers need to be more enthusiastic because they are the only people who will present the curriculum content to their students (p. 22).

Further, it may be noted that teaching facts in history lessons should be regarded as the tools or means of history not the aims, and this will then allow the students to work more imaginatively (Honeybone, 1990, p. 10).

### *Studying the Evidence in History*

Kinder and Bursuck (1991) showed that the main method used to teach history and social studies was the traditional method. They supported this by arguing that in the national assessment of educational progress in which students were asked to describe certain activities in their history subjects, most of them said that they listened to the teacher, used the textbook daily, memorized knowledge at least weekly, took tests weekly and never discussed historical events ( p. 271). Moreover, the study of history does not only depend on story-telling but also enables students to scrutinise historical evidence. As Cooper (1992) points out, there are several kinds of historical evidence such as oral history, pictures, photographs, maps, statistics, documents, newspapers and so on (p. 10). She argues that pupils have to be encouraged to 'go beyond the evidence' to develop their historical understanding and that they must learn how to make historical interpretations. So, the focused study of evidence will help students to act as historians, like detectives in time, for everything a man says, or writes, everything he makes, or he touches can teach them about him (Pluckrose, 1991, p. 42). Therefore, pupils in school need to practise the skills of imagination that



require them to pay attention to the real picture of the past and imagine it as a whole (i.e. to judge inconsistencies and to evaluate evidence). Garvey and Krug (1977) contend that it might be fruitful for the history teacher to help students to bring their imagination to the data presented and to use historical narrative or argument for studying it (p. 6). They explained that:

Pupils need to be able to think *pictorially*, to imagine the detail of what is presented in abstract print, and to imagine with authentic detail the historical reality. But they also need to be able to place themselves *empathetically* in an historical situation, to imagine by feeling as well as by seeing, since the human events they study in history have an emotional as well as a pictorial context (1977, p. 6).

Historical evidence is important in encouraging pupils to imagine all the events by means of questioning and thinking critically (ibid., p. 21). Egan and Nadaner (1988) indicated that imagination requires from students no more than to conceive of, visualize, conjure up, or think of some particular set of circumstances or evidence (p. 81). To support this, for the past twenty years there has been a proliferation in the variety of activities used, such as drama, mime and improvisation, games and simulations, discussion and debate, group and individual projects and the use of environmental resources, which serve to make history teaching more effective and beneficial (Partington, 1980, pp. 15-16).

It might be useful in history teaching to encourage students to engage in independent studies, to provide motivation, and to help them in imaginative work, that will be beneficial for active learning and for applying historical knowledge (Gray, 1988, p. 22). Gray argues that it is valuable to guide all students in all history subjects to practise what historians do, for example, pupils should seek out evidence, interpret data, weigh evidence, detect bias, make inferences and draw conclusions. It appears that effective history teaching requires the procedures of the inquiry method. Pluckrose (1991) has explained the need for the inquiry method in history teaching:

To study history requires mastery of a particular and specific academic discipline (ordered enquiry, systematic analysis and evaluation, argument, logical rigour and a search for the truth). If young people's minds are to be trained through disciplined study then they will also need to grasp something of the methods which are central to historical enquiry (Pluckrose, 1991, p. 5).

From these points of view it seems that history teaching should be very broad; the inquiry method is an extremely helpful and useful way for pupils to acquire a body of knowledge and to acquire higher order thinking skills and, in that sense, the historical method (which includes interpretation of events) is similar to the procedures of the inquiry method. Krug (1967) indicated that:

The inductive method stretches the student's mind and enables him to interpret facts accurately and apply the techniques of verification of data to the interpretation of events and people made by other historians. Students must be taught to order the facts, to ask the right questions, to separate facts from opinion, bias from objectivity, separate statements of facts from those laden with value judgements and emotions, and finally, they must be taught to solve problems in an orderly, dispassionate manner (Krug, 1967, p. 110).

This emphasizes the importance of using the inquiry method in history lessons and gives students an opportunity to distinguish between truth and falsehood, using sound judgement (ibid, p. 111). Hence history becomes a meaningful subject in school. However, this requires considerable effort from teachers to reduce the amount of traditional teaching which, as we have discussed in the previous sections, minimises the opportunities afforded to students to develop their thinking skills. The study of history should not be confined to recitation but it should lead the ripening minds of students toward a stronger and keener critical sense and it should encourage students to have an independent view of past and present events (Hill, 1953, p. 91). This is one of the inquiry method skills.

In summary, the teaching of history has benefits for society (understanding the past and planning for the future), for the individual (developing judgement, critique, an ability to evaluate information in the information revolution and problem-solving) and for pedagogy (developing autonomous, flexible learning that motivates the students, engages higher order thinking, and assists memorization, remembering and application). It is seen as a civilizing process. Attention is given to the advantages of the new history and historical studies which relate to the inquiry method, and methodology, and using different resources, is emphasised over content. As we have discussed above, there are many appropriate methods for teaching and learning history. The choice of method will be determined by given factors, e.g. purpose,

content, and characteristics of the learners. As this thesis involves a research study to evaluate teaching approaches in Saudi Arabia, the final section of the literature review evaluates selected research studies.

### **2. 3. 5 Research Studies on Teaching Methods in Students' learning in History**

Following on from what has been presented above, research evidence will now be presented regarding the effect of different methods of teaching history and on developing students' thinking skills in both the primary and secondary stages of education. Some studies have included history through social studies.

Coltham (1960) undertook research to investigate students' understanding of six terms used in history teaching, in order to obtain information about mental behaviour. The six terms were king, early man, invasion, ruler, trade and subject. Three different samples were selected: 68 students for the pilot study, 236 students as a large sample and 53 students who were given two tests. In addition, drawing and intelligence tests were applied to the three samples. Three tests were used with the pilot study which included verbal definition, picture choice and concrete model. Coltham found that pictures and drawing are useful tools to enable students to understand historical terms, and students' understanding of historical terms depended on their own experience (pp. 212-218).

Case and Collinson (1962) undertook research to investigate students' abilities in history, geography and literature at secondary modern schools in the light of Piaget's formal operational stage. Eight groups of students were selected, ten from each age group from 11+ to 18+ and divided equally between the sexes. The 11+ to 14+ group were secondary modern students and the 15+ to 18+ group students from a college of further education (p. 103). Further, five texts, two in history, one in geography and two literature were studied, followed by three questions for each text. After using the interview technique, the writers found that (pp. 105-110):



- There is a considerable increase in the incidence of formal operations from 13+ to 15+ with a decrease in concrete and intuitive functioning.
- Students with a chronological age of fifteen and of average or better intelligence have reached an equilibrium in formal operations.
- It is possible for formal operations to occur before eleven years of age.
- There was a similar weighting in mental age, with secondary modern students but it was not significant.
- Proportional judgments can be made by students of 11 years old or more, in chronological or mental age.

This seems to indicate that students in secondary schools can be involved in different tasks which enable them to use their thinking skills.

In 1964 Hallam (1972) started an investigation into students' thinking about history. He concluded that the concrete operational stage starts from age 12.4 to age 13.2 both chronologically and mentally. The formal operational stage starts between the chronological ages of 16.2 and 16.8 while mentally it starts between the ages of 16.8 and 18.2. In addition, Hallam explained that these findings in relation to history suggested that most secondary school students under 15 years of age and possibly under 16 will be at the concrete level of thinking about history. This has implication for replanning the history syllabus (p.342).

Blyth undertook an experiment (1978) with a small group of five-to six-year-old students. He aimed to investigate their awareness of the past and identify some teaching methods which enabled them to use historical material with enjoyment. He also tested their abilities in reading, writing and remembering and their understanding of the concepts of comparison, sequence, time, classification, duration and relationship. The work was done in a small library located near the classroom and the researcher spent two sessions a week with the students. The sample consisted of 3 boys and 3 girls and they were taught by discussion most of the time. The experiment was comprised of six stages in which different kinds of resources were used, and it was completed in nine weeks. The researcher concluded that (pp. 18-19):

- the practical experience of using visual aids to formulate concepts was important.
- there were a few signs of students' ability to reason logically in concept formation.
- students were keen to use the evidence.
- it appeared that students found classifying material into types quite difficult.
- these six-year-old students were capable of understanding some concepts and practising some skills of understanding the past.
- students' skills of reading, spelling and writing improved.

Although the number of students was very small, it can be seen that students of that age can work in groups, using different resources, and acquire some appropriate skills.

Smith and Tomlinson (1977) investigated the variation and developmental change in the ways in which students tackle the concept of historical duration. A sample of 144 students was selected, 60 (30 boys and 30 girls) from the top three years of primary school and 84 (45 boys and 39 girls) from the first three years of a secondary school. Students were interviewed individually in a small room and asked to name historical persons or events and to work backwards and forwards from this mid-point in one direction at a time, to determine items coming 'just before' and 'just after' it. Students were required to construct two historical intervals from their own knowledge of historical events, then asked to make absolute and comparative judgments of their duration. They were also asked to express their thoughts in a visual-spatial way (pp. 164-165). The following results were reported (pp. 169-170):

- The consistent interrelationships shown by the various measures used in this study are significant.
- Students are able to distinguish and overlap synchronous intervals.
- There is a need for an independent scale e.g. calendar years.

This study gave some basics for studying the historical duration.

Booth (1979) undertook research which aimed to ascertain students' attitudes towards history and their conceptual understanding of evidence. The number of the sample consisted of 53 students in the 14 to 16 year old age group who studied the modern world history content; further, a non historical group was matched with them (p. 166). Students were given an objective test and attitudes questionnaire. Booth found that the scores of the history group improved whether skills, concepts and attitudes higher than the other group. Students' attitudes remained unchanged (p.264).

West (1980) undertook long research to investigate students' perception of the past using different concepts such as evidence, authenticity and time-placing. The research's sample was more than 1250 students from the ages of seven to eleven. Two groups were engaged in the study, and 25 tests were used e.g. for reading, verbal, vocabulary and visual tests. West found that young students' sense of the past was developed more strongly. Further, students' vocabulary in the experimental group was improved (p. 328).

In a small local investigation, Wright (1984) concluded that seven-year-old students from the first school can work independently (p. 4).

With regards to students' attitudes towards history, a study by Bobetsi (1985) investigated the relationship between 16-19 year-old English and Greek students' attitudes to history and such factors as students' personality characteristics, classroom learning environment and teaching methods. He found that both English and Greek students considered history as a valuable and enjoyable subject and they showed general agreement about the active learning of history (p. 1126).

Crowther (1982) studied students' understanding of the concept of change. The sample consisted of 23 10-year-old students, 23 11-year-old students, 23 12-year-old students and 26 13-year-old students. Students were asked 'what does the word 'change' mean to you?'. He found that younger students saw only one aspect of change, that of substitution brought about by direct personal action. However, older and adolescent students saw change as the direct experience of one thing being altered by



another and they viewed change as part of the universal order of things in terms of transformation and gradual development (p. 284).

Knight (1989) investigated 6-14 year-old students' understanding of people in the past. He tested the students' perspectives by adapting the 'privileged information' task where students would be asked to tell a story and give information which a character in that story did not have. Here students were asked to describe another's perspective by telling a story and then retelling it from the point of view of the characters. Further, he aimed to test the students' explanations in the light of this perspective, and so students were asked to read story of similar length to that of the Peasants' Revolt and explain a feature of it. The sample consisted of a range of primary schools; two were urban schools for 5-11 years olds with over 300 students, two were village 5-11 schools with 90 students in each and one was an 11-18 comprehensive school. Tape-recording was used to record students' responses. Knight found that six year-olds were able to retell a story when helped by using pictures and, further, 32% of the six and eight-year-olds could recall the central feature of the story. In addition, older students appreciated the range of possibilities. They were more willing to qualify their judgments, avoiding categorical verdicts. This study also showed that students' performance improved over time and that they generally had the ability to understand people in the past (pp. 213-217). In fact this gives us an indication that it could be possible to encourage students' understanding of the past, motivating them through involvement in different activities and the use of different resources.

Cooper (1991) undertook research to investigate young students thinking in history and their ability to develop arguments about different types of historical sources. She carried out her experiment over a two year period with twenty students of 8-9 year-olds. Two experimental groups were involved and taught four units of history by the researcher and they studied each unit for four weeks. A control group was selected in another school, taught by their teacher who used his own methods.

Tape-recording was used with one of the experimental groups. Different written tests were used with the experimental and control groups. Cooper found that (pp. 127-337):

- Students were able to distinguish between certainty and probability statements.
- Students were able to develop arguments about evidence and use different vocabulary.
- Students in the experimental groups used the concrete and abstract concepts which they had been taught.
- The mean of the control group was lower than the mean of the experimental groups and the mean of the experimental groups improved over the four units.
- In the story-writing test, students were not able to make an holistic picture of the past.

Hoodles (1994) carried out research into language use and the problem-solving abilities of primary students in the learning of history (p. 19). Tape-recordings were obtained of the interactions between teacher/researcher and students when questioning and talking took place (p. 20). Thirty students were involved: some year three and some year six. They were required to work in groups to discuss two history problems. Hoodles concluded that the language used by the students indicated that they were either attempting or managing to think at a remarkably high level using different strategies, and that they made successful logical and realistic inferences. Moreover, they started to associate ideas in increasingly complex ways and this was reflected in their use of language. They often succeeded in making causal links. They generally used connective words such as 'while', 'when' and 'but' in ordering the events. Further, students showed their ability to use different language to express their uncertainty (pp. 20-21). This research illustrated the importance of language usage in history lessons.

It can be noted that most of these studies were about young students and they were carried out with small samples which may not allow broad generalizations. Further, the previous studies emphasized that it is possible to help students to use their thinking skills in different ways in history. The researcher may benefit from

them in his investigation in Saudi Arabia. He will use a large survey within an experiment and apply different instruments.

Good et al (1969) conducted research into an experimental social science curriculum concerned with developing inquiry skills and compared it with an established conventional curriculum. In this study the inquiry skills developed by students in the experimental group were significantly higher than those of the students in the control group. The ability of students to inquire was increased by the experimental curriculum (pp. 34-5).

Research carried out by Peterson et al (1980) investigated the occurrence of aptitude-treatment interactions (ATI) in a comparison of three teaching methods: lecture-recitation, inquiry, and public issues discussion. A second piece of research tried to repeat these ATI in the short-term. These studies were applied to ninth-grade students in social studies. The findings of these studies indicated that the ability of students in the lecture-recitation method was lower than that of students in both the inquiry and public issues methods. In addition students' achievements in the lecture-recitation method were lower than those of students in the inquiry area. On the other hand in the second study there were no significant differences in the mean scores of students aptitude in relation to teaching method (pp. 339-46).

Chermak (1981) investigated the relationship between selected social studies, teaching methods, such as the direct discovery method, and the development of students' inquiry skills in the Advanced Placement American History Program. After the data analysis he concluded that there was a positive correlation, significant at the 0.005 level, between the inquiry teaching process and students' performance on the Advanced Placement examination's document-based question. Furthermore, there was a positive correlation, significant at the .05 level, between the inquiry method and students' performance on a subtest using multiple choice questions from the advanced placement examination (p. 59).

The effect of the inquiry method in comparison with a traditional approach in teaching social studies in secondary schools was investigated by Al-Khayyatt (1980)



in Kuwait. In his research he applied an achievement test, a critical thinking test and an attitude test as pre-tests and post-tests using experimental and control groups, with students working on a unit of history in the secondary year of the secondary stage. He found that there were significant differences in the critical thinking ability test from pre-test to post-test in the post-test scores in favour of the experimental group (inquiry). In addition there was no significant difference in mean scores between students' attitudes in the experimental group and the control group. But in the achievement test there was a significant difference in the post-test between the two groups in favour of the experimental group (pp. 82-3).

Williams (1981) compared the effects of traditional and inquiry methods on eleventh-grade history students' achievement in the United States history curriculum, students' attitudes toward United States' history, and students' critical thinking ability. He carried out pre-tests and post-tests in measuring the experimental and control groups and concluded that ( pp. 53-4):

- There was no significant difference between the traditional and inquiry methods in promoting a positive attitude toward the subject matter measured using the Master Attitude scale.
- Both methods -'traditional' and 'inquiry'- can be effective as classroom procedures.
- The students' critical thinking ability was not significantly enhanced by the inquiry method.
- Using inquiry procedures did not motivate students to learn the subject matter, to any significantly greater or lesser degree than using traditional methods.

This study seems to some extent relevant to the present study in that it used a students' attitudes questionnaire, the Watson-Glaser critical thinking and achievement test, but the present study will use a survey study besides the experiment and all the instruments will be applied at the time of pre, post and postponed tests.

There is some similarity between the present study and the study of Al-Khayyatt in Kuwait in that both of them were conducted in secondary level history

using an achievement test, a critical thinking test and an attitude test. The present study differs from the earlier study in that it includes a postponed test after a certain period of time and uses different instruments. In addition, the present study will be applied with the first year of secondary school.

Khalaf (1984) in Egypt investigated the discovery approach to studying history and its effect on the acquisition of historical research skills. He carried out his study with second year students at the intermediate school and found that:

- There were significant differences in achievement between the experimental group and the control group in their history test. The experimental group produced better results.
- Learning the skills of historical research by using discovery approaches enabled students to retain more information than by using the traditional method (pp. 233-4).

Massialas, Cox and Elsmere at Indiana University investigated students' reflective thinking in solving problems, and suggested the following points (p.69):

- It is possible to use this kind of teaching in social studies.
- "Students can learn to deal with social material from this point of view and learn just as many facts in the process".
- "The reorientation of the classroom is, in itself, a powerful motivation factor".
- Teachers are willing to learn and apply this method of teaching.

Massialas (1961) conducted research to examine a method of teaching world history in high school and he analysed and evaluated its results in terms of the students' performance in class discussion, paper-pencil tests and selected critical thinking skills (p.4). He found that group A (using a reflective-oriented process) learned as many facts as group B (using a memory-oriented process) in world history achievement. In relation to the critical thinking test students in group A appeared more highly aware than group B of the following skills, abilities and processes: (a) hypothesising, (b) defining and clarifying, (c) enlarging the perspective, (d) identifying and probing assumptions, (e) drawing logical implications, (f) producing

relevant information and (g) generalising and distinguishing between different kinds of generalisation. Moreover, he found that the nature of discussion used with group A encouraged students' participation and reflective inquiry (pp. 136-9).

Cox (1961) also investigated the effect of the reflective method of teaching on a high school course in United States history on students' critical thinking and achievement (p. 6). He found that method A (reflective teaching) gave students more opportunities to practise the different skills of critical thinking and there was an increase in their ability to think critically. Further, with group B (factual historic material teaching) the classroom procedures did not motivate or encourage reflective thinking. With regard to the standardized test that he used in this research there was no difference between the two groups, A and B, in the acquisition of factual knowledge about United States history, and this means that the learning of both groups became equal during the course (174-8).

Elsmere (1961) attempted to investigate the effect of both the problem-solving approach and the traditional approach on students' achievement in United States history (p.1). He concluded that the students taught by the problem-solving approach produced significantly greater achievements than students of the traditional approach. In addition, students taught by the problem-solving method learned and retained historical facts more easily than those taught by the traditional method, i.e. the experimental group retained facts significantly better than the control group (pp. 90-91).

Kamal (1990) undertook an experimental study to investigate the effect of using the traditional method in comparison to different teaching methods (e.g. discussion and inquiry) on the achievement and attitudes towards history of secondary schools girls in Qatar. She found a significant difference between the experimental and control groups in the achievement test in history at the time of the post-test and postponed test showing that the experimental group had mean scores higher than the mean of the control group. In addition she concluded that the difference between the two groups in relation to their attitudes was significant and the experimental group



had mean scores higher than the mean of the control group at the time of the post-test (pp. 330-4).

El-Kilzah (1989) carried out a study of the effects of the inquiry method in geography teaching on students' achievement and their improvement in scientific thinking in the secondary first year. Two tests were given in the first year of a secondary school in Egypt:

- An achievement test in a modified unit in geography.
- A scientific thinking test, which was already prepared by Wajeeh Ibrahim and included inquiry skills e.g. identifying the problem, formulating a hypothesis, collecting data, making interpretations and generalizations (pp. 354-7).

The findings of this research showed that there were significant differences between the experimental (inquiry) group and the control group (traditional) in the achievement test in favour of the experimental group, who achieved good scores in the achievement test in geography. Regarding the scientific thinking test there were significant differences between the two groups again in favour of the experimental group, showing that students of the experimental group out-stripped students of the control group in the area of scientific thinking skills (pp. 367-8).

A comparative study conducted by Saadah (1984) was designed to see if there were any differences between students who had followed the inquiry method and the traditional method using an achievement test and test of retention of geography in the secondary first year in Jordan. He found that there were significant differences between students in the experimental group (inquiry method) and the control group (traditional method) in the achievement test and in the retention test in favour of the experimental group (pp. 128-9).

Al-Hassan (1988) investigated the effects of the inquiry method and the traditional method in an achievement test in geography given to second year students in secondary school in Bahrain. The findings of this study were as follows (pp. 230-1):

- There were no significant differences between students in the experimental and control groups in the achievement test in knowledge and comprehension when applying levels jointly or separately.
- There were no significant differences between students in the experimental and control groups in retaining information at Bloom's 'knowledge' and 'comprehension' levels.
- There were significant differences between the two groups in the 'whole retention' and 'applying' levels in favour of the experimental group (inquiry group).

In relation to the studies which have been conducted in Saudi Arabia about history in particular and in social studies in general, Al-Habad (1991) aimed to investigate the extent to which educational resources were used in teaching history in the developed secondary schools in Riyadh examining the teachers' and inspectors' points of view (p.5). He concluded that:

- There is a need to use educational resources in history lessons in developing secondary education.
- Most of the educational resources used in history were limited to black boards and historical maps whereas other resources were not used enough or were not used at all (p. 91).

Al-Zamil (1992) conducted research to investigate the attitudes of students in the secondary stage towards the learning of social subjects (history and geography) and his research included all students from the first, second and third years (art group) of the secondary schools in Riyadh (pp. 3-4). He found that attitudes towards learning social studies in secondary education in Riyadh were positive, as reported by about 70% of the respondents. Moreover, the proportion of students in the first year who stated their positive attitudes towards the learning of the social subjects was 67.3% (pp. 74-5).

Thus, it seems that the inquiry method has been recommended for use in teaching social studies in general and history in particular. The studies that were

carried out in geography indicated the importance of the inquiry method. One of the studies of educational resources asserted the importance of using such resources in teaching history. Moreover the research that studied the students' attitudes emphasized that students in secondary schools have positive attitudes towards history. It becomes clear that the empirical research evidence largely sustains the view that the inquiry method should be used in teaching social studies generally and history in particular.

From the previous discussion of different researches, it can be seen that there are some aspects which might have influenced both history teaching and research approaches in Saudi Arabia.

## **2.4 Some Links with Saudi Arabia**

With regard to history teaching, it can be seen that many of the issues which have been addressed in England do not appear in Saudi Arabia. The content of the Saudi history syllabus is considered very important because it focuses on teaching students about Islamic history which represent an essential part of their religion. However, the history syllabus in Saudi Arabia is full of historical facts, dates, names and events which students must memorize. (This will be mentioned in the next chapter about the educational system in Saudi Arabia). The Ministry of Education has made many efforts to develop the curriculum content by reducing the size of textbooks, adding some extra information and reducing the lesson time in the timetable as will be indicated later. Students study history from the fourth year of primary school to the final year of secondary school. In the fourth year of primary school they study the biography of the prophets; in the fifth year they study AlKhulafa' AlRashdeen; and in the sixth they study the unity of Saudi Arabia which is considered as local history. Further, in the intermediate stage, students must repeat their study of the biography of the prophets, AlKhulafa' AlRashdeen, Al'Umaween State and Al'Abaseen State. In the first year of secondary school, students study in more detail the biography of the Prophet Mohammed, in the second year they study the Islamic world and in the third year they study Islamic Culture. Moreover, it can be noted that



while there has been an interest in using different resources such as maps, pictures and audio-visual material there are no activities involving visiting museums or taking students on field trips. History teaching in Saudi Arabia does not use methods such as simulation, games, drama: teachers almost exclusively use the traditional method.

From the discussion above, it can be seen that the context of history in Saudi Arabia depends on a chronological approach in most of the syllabus at all stages. In the first year of secondary school the syllabus depends on the biography of the Prophet Mohammed, in other words it aims to enable students to extend their knowledge about moral instruction and values, Islamic heritage and to benefit from them in their personal life. Moreover, the following points can be addressed:

- History content in Saudi Arabia depends on giving students a large amount of knowledge about past events, in contrast to history teaching in the UK which addresses the balance between local, national and world history, between past and present, and taking into account the importance of current affairs or contemporary history.
- History content in the first year of secondary school has been taught by the traditional method as will be mentioned in the next chapter.
- Traditionally there has been little concentration on developing students' thinking skills.

In the light of the review of history teaching in UK the researcher will establish a new approach for the first year of secondary school within the prescribed curriculum in Saudi Arabia but adopting aspects of the inquiry method. by taking advantage of using different resources to motivate students and to enable them to gain historical understanding.

## Summary

It has been shown that the traditional method has a long history in teaching and learning, and yet it has attracted many criticisms. On the other hand, there are some approaches such as the inquiry method, that enable students to take an active part in their learning and to use their thinking skills and critical faculties and to pose questions. Here pupils can find answers or solutions to their problems or questions, with teachers acting as guides and directors. It has been suggested that traditional and inquiry methods both have advantages and disadvantages, and that teachers should adopt a wide range of styles in their teaching.

Different types of inquiry approach have been outlined (guided inductive inquiry, unguided inductive inquiry, deductive inquiry, problem-solving and the Suchman inquiry model). In general, the procedures of the inquiry method involve the following steps: defining a problem or question, formulating hypotheses, gathering data and studying evidence, and making conclusions or generalisations.

The role of teachers in the traditional approach differs from their role in the inquiry method in that they take an authoritarian position in the traditional classroom, but allow their students to play a more active part in their learning when adopting the inquiry method.

It is clear that there are different views of the nature of history. The study of history is considered important and beneficial, especially when teachers try to motivate their pupils to think about past and future events and about their society, using their imagination when studying historical evidence, and practising critical thinking, when they need to know more about relationships, for example, cause and effect or to distinguish between fact and fiction, and so on. The argument was presented that the inquiry method, with its links to critical thinking, was more appropriate than the traditional method for today's changing world.

The claim has been made that the inquiry method has considerable advantages over the traditional method for history teaching and the preparation of future citizens.

In the light of the literature review discussion, the researcher will address the following issues in the present study: the controversies over teaching methods such as traditional and inquiry methods, the effects of teaching and learning in the context of history teaching, students' attitudes and attainments, and to discover whether similar research findings would be found in samples of students in Saudi Arabia. These issues will be discussed in chapters 4 through 6.

In order to provide an appropriate educational context for the study of these issues, the next chapter provides information about the Saudi Arabia educational system and history curriculum.



# **Chapter III**

## **Some Features of the Educational System in the Kingdom of Saudi Arabia**

This chapter outlines the educational system in the Kingdom of Saudi Arabia where the fieldwork was undertaken. This is set out in the following sections which establish a relevant context for the empirical research:

- The organization of education in Saudi Arabia and development;
- The objectives of education in Saudi Arabia;
- The secondary stage and its objectives;
- The objectives of history teaching in Saudi Arabia;
- An introduction to the history curriculum and the secondary curriculum;
- Some features of the development of secondary education.

### **3.1 Introduction**

The Kingdom of Saudi Arabia has developed an educational system that is based on the principles of Islam in the primary, intermediate and secondary schools (general education) and in higher education. On the whole, Islamic subjects constitute the basic education in all stages. Educational policy in Saudi Arabia (1974) is thus indicated:

The fundamental purpose of education is to let students have an understanding of Islam through inculcating the Islamic tenets, providing them with good manners, developing in them knowledge and skills, promoting the growth of good behaviour, developing the culture, social and economic aspects of the society and preparing a person to be a good citizen in building his society. (Educational Policy, 1974, p. 12).

The Arabic language is the official language in all education in Saudi Arabia. Teaching English language starts from the intermediate stage. Education is free for all students in all levels, and the government has signalled its intention that "the state will not charge tuition fees" (ibid, 1974, p.44).

### 3.2 The Organization of Education in Saudi Arabia

There was no official education before the uniting of the Kingdom of Saudi Arabia. Therefore, the only education in that time was *kutaab* in which a person, who was known by the Sheikh, had the responsibility of teaching pupils the Holy Quran and some principles of reading, writing and some elementary arithmetic (Al-Sonbul et al, 1992, p. 71). This *Kutaab* was widespread in most areas of Saudi Arabia, for example Nagd, Al-Hejaz and Al-Ahsa (Al-Hugail, 1993, p.10). Modern education began in Saudi Arabia when King Abdulaziz issued his decree to establish 'the Directorate of Education' in 1924 that had responsibility for education. The aim of this directorate was to spread science, knowledge and trades, opening offices, schools and protecting the institutes of learning all over the Hejaz Kingdom at that time, taking care to address the basics of Islam (Alsheikh, 1992, p.16). There were four stages of education: elementary, preparatory, secondary and higher (Educational Statistics, 1985, p.9). During this period the Directorate of Education established the Religious Science school in 1933, the Al-Baathat school in 1935 (the first Secondary school), the Quran schools, evening schools, the Al-Ilmi institute, and set up the college of Sharia in 1949 in Makkah, and the college of teachers in 1952 (ibid, 1985, p.9). The magnitude of the achievement of the directorate of education in that time can be attested by the figures in table 2.1:

Table 2.1 The Achievement of the Directorate of Education (1924-1952)

Types of school	No. of schools	No. of students	No. of teachers
Elementary	306	39920	1472
Secondary	10	1315	133
Secondary institute	1	335	42
Shari'ah college	1	55	3
Teachers college	1	35	6
Industrial school	1	37	3
Evening schools	3	302	19

Modern education in Saudi Arabia was established when the Kingdom of Saudi Arabia was unified in 1931, when the responsibilities of the Directorate of Education became more comprehensive and extensive. It remained in operation until the establishment of the Ministry of Education in 1953 (ibid, 1985, p.9).

King Fahad bin Abdulaziz was the first minister of education. He encountered many problems, for example those relating to the qualification of teachers, schools' development and opening further schools all over the country (Forty Years of the Age of Education, 1993, p. 33). The Ministry of Education established an "organisational chart" that explained the directorates of education in different districts of Saudi Arabia that had responsibility for administering and supervising education in each district. During the period 1952-1960, the Ministry of Education reorganized and developed the educational system and its concomitant administrative processes, and improved the quality of education (The Statistical Book, 1985, p. 11). In 1953, in order to combat illiteracy, the Ministry of Education opened 13 evening schools for adults. Further it established 406 elementary schools, 79 intermediate schools, 26 secondary schools, 18 teacher training colleges and 5 technical, agricultural, and industrial institutes (Alsheikh, 1992, p.100). At that time there were 17 educational directorates in different part of Saudi Arabia which have now expanded to 40 directorates. (ibid, p. 98). A reflection of the work of the Ministry of Education since its establishment can be seen in table 2.2, indicating the quantitative development of schools, teachers, classes and students in the secondary stage through each five years (Forty Years of the Age of Education, 1993, p. 63):

**Table 2.2: The Quantitative Development in the Main Elements of the Educational Process in the Secondary Stage through Each Five Years (1959/1960-1993).**

years	Number of Schools	Number of Classes	Number of Students	Number of Teachers
1960	16	76	1260	105
1965	17	127	3689	142
1970	50	368	9584	477
1975	84	780	22606	1377
1980	259	2092	54841	3003
1985	462	3096	79990	5140
1990	581	4777	127042	8195
1993	758	6033	156480	10677



The educational system consists of three stages, preceded by an optional kindergarten stage for children aged 4-6 years. The three stages are: *elementary* for students aged 6-12 years, *intermediate* for students aged 12-15 years, *secondary* for students aged 15-18 years (Educational Statistics, 1985, p. 21). The preparation of the curriculum is undertaken by the Ministry of Education and organized through subcommittees. These are responsible for the preparation and development of the curriculum in all levels and in all subjects in compliance with the educational policy in Saudi Arabia (The Development of Education, 1992, p.14). The Ministry of Education has responsibility for developing education especially the curriculum, recommending amendments to the textbooks, such as including further information, changing the colour of pictures and maps, but it does not include all components of the education process such as teaching methods. This development of the curriculum still depends on adding facts and knowledge, in other words it does not pay attention to developing students' understanding and thinking skills. This also does not encourage teachers to use various methods of improving students' thinking skills. Newspaper reports (e.g. Okaz Daily Newspaper, 1993) indicate that the content of the curriculum is still too great and that teachers insist on using the traditional method. Moreover the Ministry of Education has been requested to give additional attention to developing the curriculum for all stages.

The education of girls was begun on a trial basis in *Kutaab* and some private schools. This situation continued until the establishment of the Presidency of Girls Education in 1960. This Presidency established a complete system for the education of Saudi girls, progressing from the provision of elementary education in 1960 to intermediate education in 1963. The Presidency of Girls' Education also developed a system for the preparation of women teachers. This Presidency now has entire responsibility for the education of girls in the Kingdom of Saudi Arabia (Educational Statistics, 1985, p. 11).

The education of girls in Saudi Arabia aims to provide girls with an Islamic education to be able to fulfil more effectively their roles as a successful housewife,

an ideal wife and a good mother and to prepare them for such professions as teaching, nursing and medicine. According to the Educational Policy (1974), girls' education in Saudi Arabia must be separate in that:

co-education is prohibited in all stages with the exception of nurseries and kindergarten. (The Educational Policy, pp. 29, 30).

Secondary education for girls teaches the same basics and rules as boys, with attention to the education of children with special needs, and for the preparation of girls for motherhood (Educational Statistics, 1985, p. 22).

The Ministry of Higher Education was established in 1975. There are seven universities in Saudi Arabia that give awards to students who have secondary degree certificates (Educational Statistics, 1985, p.12).

To provide qualified manual workers who will participate actively and effectively in society, the government established a separate organisation for technical education and vocational training in 1980 which became part of the responsibility of the Ministry of Education (ibid, 1985, page,12).

It can be seen that the education system in Saudi Arabia is clearly controlled by the government; this serves parity of provision in all parts of the country. The Ministry of Education supports the use of experimental methods.

### **3.3 The Objectives of Education in Saudi Arabia**

Educational policy has defined a set of general objectives of education. These possess the following key features (see Appendix 1):

- Developing the spirit of allegiance toward Islamic law.
  - Supplying individuals with good and necessary ideas, feelings, and powers that help them to carry the message of Islam.
  - Supplying students with a suitable amount of cultural information and educational experiences to make them an active member of society.
  - Encouraging and developing scientific thinking and research, strengthening observation, contemplation and enlightenment of students of Allah's miracles in the universe and his wisdom in his creation, to enable students to have an effective role in building society and guiding the direction of its development.
- The objectives of education in Saudi Arabia emphasize the importance of scientific thinking which enables students to use their thinking skills in understanding, interpretation, and critique (see Appendix 1).

Education in Saudi Arabia strives to provide opportunities to all Saudi students to enter schools willingly in order to participate in building their country. The education system and its developments focus strongly on Islam. Education in Saudi Arabia should encourage teachers to use different kinds of teaching methods to give their students opportunities to obtain information and knowledge. It is worth mentioning that the educational policy has also been defined as having many different objectives for the primary stage, intermediate stage and secondary stage. As this study concerns the secondary stage, the researcher will discuss this stage, its objectives and developments in detail.



### 3.4 The Secondary Stage and Its Objectives

As this study will concern students in the first year of secondary education it is worthwhile therefore to expand on the secondary stage in the educational system in Saudi Arabia. The educational policy has limited the schooling period in the secondary school to 3 years, at the end of this period students gain the secondary degree in all its forms. Education at this stage is available to all students who have the intermediate degree, they are entitled to enter any kind of secondary schools if they meet their entry requirements (The Educational Policy, 1974, p. 25).

The Al-Ilmi institute was the first secondary school, established in Makkah in 1926, offering a period of schooling of 4 years. The Directorate of Education then extended the period of study to 5 years. The real start of the modern secondary school was begun when the Al-Baathat school was established in 1936 in Makkah. The period of schooling there was 3 years. Dar Al-Tawhid was established in Taif in 1945, and students remained in this school for about 5 years. In 1971 the period of secondary schooling became 3 years, following 3 years of intermediate education (Al-Sonbul, 1992, pp.187-8). There are several different kinds of secondary schools, for example: the traditional secondary school, the commercial secondary school, the vocational secondary school, the agricultural secondary institute (Educational Statistics, 1985, pp. 23-4, Al-Hugail, 1993, p.214) and the religious secondary school (e.g. Al-Elmi institutes, Daraltawhid secondary school) (Al-Sonbul et al, 1992, p.214). Traditional secondary schools teach general subjects in the first year. In the second year the subjects are divided into two areas (Arts & Science) and each student opts for one of these in accordance with his own interest. Table 2.3 below indicates the subjects which students study in the secondary school (Al-Zaid, 1990, p. 119):

**Table 2.3 The Number of Hours which Students Should Study Weekly**

The number of hours which students should study it weekly							
Subject	First Year		Second Year		Third Year		Remarks
	art	science	art	science	art	science	
Religious Education		4	4	4	4	4	Quraan,Hadith Tawhid, Fikah
Arabic		9	11	4	11	3	grammar, art, reading, rhetoric
Social Science		4	8		8		history,geography, psychology, sociology.
Mathematics		4		9		9	Geometry, algebra, arithmetic.
Science		6		12		12	Physics, chemistry, biology.
Physical Education		1	1	1	1	1	
English		7	6	6	6	6	
Activity		1	-	-	-	-	
Total of hours		36	36	36	36	36	

The secondary stage is the third phase in the educational ladder. Pupils begin this stage when they are 15 years old and continue until they are 18 years old (Statistical Book, 1985, p. 21):

Secondary education is the third stage in general education 'if kindergarten is excluded'. It caters for the 15-18 age group when the student would be grown up and mature enough to take his own decision regarding his future education and career.

The objectives of education for this stage in Saudi Arabia (The Educational Policy in the Saudi Arabian Kingdom, 1974, pp. 21-2) are several:

1. Pursuing the strengthening of faith in God alone and making all deeds according to his law.
2. Fortifying Islamic tenets which help the pupils to understand the universe, and to provide them with basic concepts and Islamic culture which makes them proud of Islam and to be able to preach and defend it.
3. Fastening the students' active affiliation toward their Islamic nation.



4. Establishing in the students loyalty to the Islamic home and the Kingdom of Saudi Arabia.
5. Developing students' abilities and faculties and guiding them to achieve the objectives of Islamic education in its general sense.
6. Developing scientific thinking in pupils and deepening in them the spirit of research systematically and methodically, using references and encouraging them to be familiar with sound academic methods.
7. Giving opportunities to capable students and making them ready to continue their study in all levels in higher education institutes and universities catering for all different specialities.
8. Preparing all pupils to work in varied domains of life at an appropriate level.
9. Graduating the number of technically and morally qualified persons required to fulfil the country's need in the first stage of education, religious duties and technical activities (farming, trade, industry etc).
10. Establishing the family's awareness of the need to build a sound Islamic family.
11. Preparing students spiritually and physically for Jihad (Holy War).
12. Developing young men on the basis of Islam, addressing their mental and emotional development and helping them to pass successfully and safely through this critical stage of their life.
13. Equipping students with the ability to read and the desire to increase their scope of knowledge, good works and to spend their leisure time in useful activities to improve their personality and the conditions of their society.
14. Forming in students positive awareness to enable them to confront destructive ideas and misguiding trends.

Undoubtedly these objectives are very important for inspectors and teachers to understand so as to be able to address them with students, helping them to be qualified and educated and to respond positively to the demands of accountability in their society. Moreover these objectives emphasize the strengthening of an Islamic sense in students toward the history of Islam, developing their abilities, encouraging



them in all subjects in general and in history lessons in particular to participate actively. According to educational policy the state is responsible for providing the curriculum for students in all stages. Moreover this curriculum has to adhere to several principles (Educational Policy, 1974, pp. 37-8):

1. The curriculum should emanate from Islam and the nation's basic elements and its system.
2. It should be compatible with the nation's needs and aims to achieve its goals.
3. It should be suited to students' levels of achievement.
4. The curriculum has to enable students to meet the required levels of educational objectives.
5. It should be balanced, flexible and compatible with different environments and circumstances.

In addition the programme should include the following (ibid, p.38):

- It should address the state's objectives for education.
- It has to include the specific objectives for each stage and in each subject.
- It should define educational levels, practical skills, and cognitive and moral attitudes that have to be achieved.
- It should set up instruction that lead teachers to attain the objectives.
- It should contain extra- curriculum activity to achieve its objectives.
- It should include the purpose of each unit or section of the curriculum.
- It should evaluate students' progress.

It is important to give students opportunities to use their thinking skills, requiring of teachers the use of different teaching styles. Also important is the development of positive awareness in the students and the ability to judge and distinguish destructive trends and misguided ideas. This may be helped by the use of the inquiry method and the development of critical thinking. Students in the first year of secondary school study different subjects alongside history as follows:

- Religious subjects (e.g. Quraan, Tawhid, Fikah, Hadith).

- Arabic Language courses (Grammar, Reading, Rhetoric, Language Arts, Comprehension).
- Social studies courses (History, Geography, Psychology, Sociology).
- Mathematics.
- Science (Biology, Chemistry, Physics).
- Physical Education.
- English Language.

Secondary education has passed through several developments during recent years in order to satisfy students' needs and to offer them more choices. One of these developments was the comprehensive secondary school to give pupils more opportunities to choose different subjects and to provide suitable time for study. The first trial of this kind of school took place in 1975 at Al-Yarmook school in Riyadh city. This school was able to give students more opportunities to choose subjects, enabling them to participate in different activities e.g. (library, laboratory work and so on). This school was organized by departments, (religion and human relation, languages and social studies, sciences, education, mathematics and natural science, industry, agriculture and trade) (Al-Hugail, 1982, pp. 43-6). Moreover the comprehensive school followed the credit hours' system enabling students to study for 120 credit hours in two annual semesters, taking groups of compulsory and selected subjects (ibid, p. 46).

This type of secondary school was justified because, as Al-Faleh has indicated,

the general secondary school did not meet the requirements of the state's development planning because the subjects did not prepare students to participate in all fields of life, this system did not give chances to curriculum development and it did not take full care of the individual difference among students (Al-Faleh, 1989, p. 67).

In 1986 the Ministry of Education tried another kind of secondary school project, the 'developed' secondary school in seven schools, which required students to study for 180 credit hours in six terms. It aimed to enlarge the scope of the secondary education by establishing new curricula and programmes that met students' needs and the technological and scientific developments in their country and to set up a kind of



secondary school that was characterised by flexibility, giving students more chances to select suitable programmes in accordance with their interests and predispositions. However the most important goal was to address individual differences among students and to help their scholastic progress, limiting their failure to continue their studies in secondary schools. The development of secondary education tries to assist pupils to contribute to practical life and the matters of development in their country actively and effectively (Ministry of Education, 1986, p. 9). The programme of this school contains general subjects (compulsory), specialist subjects including Islamic and Arabic science, social and administrative science, natural science and additional subjects (e.g. physical education, art education, English language and computing) (Al-Sonbul et al, 1992, pp. 228-9). The Ministry of Education took a decision in 1992 to give up the credit hours' system gradually in the all Saudi secondary schools because this style of secondary education did not suit the nature of Saudi students who were unable to adapt to such developments. The Ministry of Education since then has tried to find an alternative system. It has set up a modified plan for secondary schools that began in 1993 at the first secondary stage (Educational Development, 1992, p. 51). Table 2.4 describes the modified plan of the secondary stage (Forty Years of Education, 1993, p. 95):



Table 2.4 The Modified Plan of Secondary School

Subjects	Branch of Subjects	First Class	Shariah & Arabic		Administration & Social		Natural Science		Technical Science	
			sec	thir	sec	thir	sec	thir	sec	thir
Shariah	Quraan	1	3	3	2	2	1	1	1	1
	Interpretation	1	2	2	1	1	1	1	1	1
	Hadith	1	2	2	1	1	1	1	1	1
	Tawhid	1	2	2	1	1	1	1	1	1
	Fikah	1	3	3	1	1	1	1	1	1
	Total	5	12	12	6	6	5	5	5	5
Arabic	grammar	2	3	3	2	2	2	2	2	2
	rhetoric	-	2	2	-	-	-	-	-	-
	art	2	2	2	1	1	1	1	1	1
	reading	1	1	1	1	1	-	-	-	-
	comprehen-sion	1	1	1	-	-	-	-	-	-
	total	6	9	9	4	4	3	3	3	3
Administ	adminis sci	-	-	-	2	3	-	-	-	-
	economics	-	-	-	1	1	-	-	-	-
	accounts	-	-	-	2	2	-	-	-	-
	total	-	-	-	5	6	-	-	-	-
Social Science	history	1	1	1	2	2	-	-	-	-
	geography	1	1	1	1	1	-	-	-	-
	psychology	-	1	-	1	-	-	-	-	-
	sociology	-	-	1	1	1	-	-	-	-
	total	2	3	3	5	4	-	-	-	-
Science	physics	2	-	-	-	-	4	4	t e c h	t e c h
	chemistry	2	-	-	-	-	4	4		
	biology	2	-	-	-	-	4	4		
	geology	-	-	-	-	-	1	1		
	total	6	-	-	-	-	13	13	13	13
Math & Statistics	maths	5	-	-	3	3	6	6	6	6
	statistics	-	-	-	1	1	-	-	-	-
	total	5	-	-	4	4	6	6	6	6
English	Language	4	4	4	4	4	4	4	4	4
Computing		1	1	1	1	1	1	1	1	1
Physical	Education	1	1	1	1	1	1	1	1	1
Activity		1	1	1	1	1	1	1	1	1
Total		32	32	32	32	32	34	34	34	34

To know to what extent the students have achieved objectives and what knowledge, skills and experiences they have accomplished, the evaluation process in the education in Saudi Arabia has depended on setting up a set of examinations at the end of each term in every subject. Students can move to the next stage if they are successful in all subjects (Educational Policy, 1974, p.39). This type of examination

seems to stress the procedures of the traditional method which are based on students' memorization of knowledge for passing the exam at the end of the school year.

From the above review of features of the educational system in Saudi Arabia it seems that the Ministry of Education has tried to make several efforts to develop education in all stages, giving more facilities for teachers. However it seems that teaching methods which teachers have tried to follow in their teaching are still concentrated on using the traditional method. Al-Dayel (1986) has characterised the teaching methods that have been used by Saudi teachers (1986, p. 116):

- Teachers try to teach all the knowledge that exists in the textbooks to students using methods that do not help them to think individually.
- These methods have utilised the teacher-centred approach and that did not give students the opportunity to learn how to learn. There is a lack of encouragement for pupils to use scientific thinking that depends on analysis and review methods.

As mentioned above the examination system stresses using the traditional method which make students learn for the sake of passing the exam and for that they just memorize knowledge which often is immediately forgotten. Furthermore the objectives of education in Saudi Arabia, the objectives of secondary education and the objectives of history emphasize that students should participate in building their country actively and effectively; however it will be shown that this can be accomplished by using methods such as the inquiry method and the project method. To prepare thoughtful students it is necessary to avoid using only the traditional method.

### **3.5 The Objectives of History Teaching**

Besides the general educational objectives set out above there are objectives for each subject. According to the Secondary Stage Curriculum (1988, p. 165) teaching history should address the following objectives:



1. History should be the means for strengthening Islamic tenets, so that GOD (ALLAH) has all the strength and power.
2. History should build in students one of the most important Islamic principles, that is the preparation of oneself for action, embracing power from the Islamic doctrine in accordance of the Holy Quraan.
3. History should instil determination in students' minds.
4. History is concerned to explain lessons of Islam.
5. History should inculcate in students allegiance to GOD (ALLAH).
6. Students should have confidence in Islam and its power for solving international troubles and human problems, whether national or international.
7. History should clarify the view that Islam puts all its followers, from different walks of life, on the same level in rights and duties.
8. History should explain GOD's (ALLAH'S) mercy to people in his Prophecy and the development which human kind has achieved by virtue of the Prophecy.
9. History should assist students to understand the lines of human development up to the present age, teaching them the method of historical research and training them in judgement and critique.
10. History should address Islamic principles for education in students, for example their desire to sacrifice, and implant in them the virtues of forgiveness, foresight and the avoidance of bias.
11. History should help students to pay attention to the Islamic heritage so as know more about it.
12. History should develop students' awareness of Islam.
13. History should encourage students to be proud of the position of their country as the centre of the Islamic world.

These objectives of history teaching emphasize the importance of history in strengthening in students Islamic tenets. Also teachers should bear in mind that they should use history lessons to help their students to practise historical research which enables them distinguish between facts and myths, to judge, critique, find out the



evidence and infer from the past events (objective no. 9). Indeed these skills are parallel with the inquiry method and critical thinking skills.

History is taught to students from the fourth year of the elementary stage until the third year of secondary schooling. Students are introduced to sets of events in different historical periods. Students in the first year of secondary school are taught history for two lessons per week, covering the following subject matters (Secondary Stage Curriculum, 1988, pp. 168-172):

A - The prophets and their messages.

B - Biography the life of the Prophet MOHAMMED (may peace be upon him).

C - Examples of eminent figures in Islamic history.

It can be noticed that the researcher will design a teaching programme which will be based on the inquiry method that enables students to practise critical thinking skills, taking into account Bloom's Taxonomy of educational objectives. This will be discussed later in the methodology chapter.

### **3.6 Need To Improve History Teaching in Saudi Arabia**

Educators in Saudi Arabia recognized that history in schools contributes, with other social sciences, to helping students to prepare for living in and adapting to their society. History is important since it studies the past events through which the present can be understood and future trends can be anticipated.

As we have seen, teaching history should be based not only on telling historical events but also on developing the historical thinking abilities of students; that has been discussed in the preceding chapter and includes: investigating, explaining, and criticising historical events, distinguishing between true facts and myths, accepting correct conclusions, refuting false conclusions, and searching for truth in sources.

It has been observed that history teachers in Saudi Arabia still present history to students in the form of telling historical facts and events to be learnt by heart or memorised and recalled in tests. This leads to forgetting this knowledge, and as a

result, students may look upon history as a dull subject that does not deserve much effort.

As we have seen in the previous chapter there are methods that attempt to make learning effective and to help students acquire many skills. History, in this case, aims at making students free at work and responsible, and making the teacher act as a guide... these methods are based on helping students to search for and get the facts by themselves (Al-Qadi, 1981, p. 228).

In teaching history in all stages and in all classes the teacher is still using the traditional method; that does not help students to take more of a role in their learning process. Teachers do not attempt to stimulate their students' thinking skills, so that students immediately forget the knowledge and information that they have learnt when they complete their examination and most of them forget the simple things that they studied in their previous stage.

During the researcher's visits to schools (while supervising teaching practice students) during the period from December 1988-July 1991, he observed that most teachers were using the traditional method, where information was presented to students who had to listen and learn by heart. He discussed with some social studies inspectors and teachers the common method that operated in schools; they said that it was the traditional method with some additional simple discussions. The researcher tried to ask many students in different educational stages about how much they liked social studies in general and history in particular. Though the responses were not recorded, they said that they regarded these subjects as dull, monotonous and undemanding.

It was clear that there were no serious attempts by teachers to encourage their students to participate actively and effectively in the learning and teaching process by motivating them, using their thinking skills, to be able to find knowledge, solutions, and answers to their questions by themselves with assistance from their teachers. Furthermore teachers should work actively in assisting their students to use their thinking skills. A conference on the preparation of teachers which took place on the



12-14 of April 1993 in Makkah in Saudi Arabia recommended that the plans for teachers' preparation should include procedures which help teachers to develop the ability of critical thinking in their students and it stressed using different and new educational methods to encourage both teachers and students to be imaginative. The researcher believes that it is necessary in this study to compare the traditional method with other methods that give students more opportunity to think, to pose questions or problems and find answers or solutions and to ascertain the effect of the two methods. This has become increasingly important as, in 1992 the Ministry of Education reduced the number of lessons for history in the first year of the secondary school from two lessons to one each week, the same also for geography. The content of history was reduced and became restricted to the life of the Prophet MOHAMMED (may peace be upon him). That reduction of history teaching time actually does not give teachers opportunities to use various kinds of teaching methods and to motivate their students to use their thinking skills during history teaching. Hence it becomes increasingly necessary to ensure that teaching time is used most effectively. The inquiry method, as was seen earlier, requires extra time to work effectively, to train students to use their thinking skills. Many teachers in schools still use the traditional method to complete the requirements of the curriculum during the term time.

## **Summary**

In this chapter the researcher has outlined some features of the educational system in the Kingdom of Saudi Arabia, exposing the beginnings of education there, the origins of the Ministry of Education, and the organization of the educational service. The researcher has given some explanation of the objectives of education in Saudi Arabia, the objectives of the secondary school stage and the objectives of history teaching. However it has been clear that teaching history in the secondary stage and in fact in all stages has concentrated on a traditional method that denied students active and effective participation in the classroom. This has encouraged the researcher to conduct this study, raising some questions to investigate the problem



that related to the traditional and inquiry methods to see to what extent these methods affect students' interactions and their participation in the educational process and the success of their learning in history. This will be discussed in the next chapter.

## **Chapter IV**

### **Research Design**

This chapter will address the elements of a research design as mentioned in educational research (Ary et al, 1990, pp. 43-291, Borg, 1981, pp. 67-101, Mouly, 1978, pp. 58-152) as follows:

- The aim of the instrumentation for the empirical investigation;
- The research questions to be addressed;
- The research hypotheses;
- The parameters of the research;
- Approaches to research design (historical, survey and experiment);
- The instrumentation for data collection (Students' Attitudes Questionnaire towards History and its validity and reliability);
- The pilot study;
- The final version of the Students' Attitudes Questionnaire;
- Watson-Glazer Critical Thinking Appraisal, and the Modified Watson-Glazer Critical Thinking Appraisal and its validity and reliability;
- The Achievement Test, its objectives, content, form, validity and reliability, item discriminability and difficulty;
- Teaching Programme for History, its objectives, content and validity;
- The population and the sample for the study;
- Ethical issues in conducting the research;
- Conducting the fieldwork.

#### **4. 1 Aims of the Instrumentation for the Empirical Investigation**

The general purposes of the empirical investigation have already been outlined. In particular these included:

1. Studying the educational principles underlying the inquiry method of teaching in general and history teaching in particular.

2. Identifying the history skills which may be developed by using inquiry methods among secondary school students.
3. Providing a programme of lessons for first year secondary school pupils which uses the inquiry method.
4. Developing a questionnaire to assess students' attitudes towards history in the first year of secondary school.
5. Getting indications or impressions of students' views on using different learning styles in history, geography and science.
6. Bringing forward a set of recommendations and suggestions to improve history teaching in the secondary school.

#### **4. 2 Research Questions to be addressed**

From the previous chapter it has been suggested that the inquiry method might have advantages over traditional methods. The empirical research sought to investigate this issue. In this respect the following question is addressed:

How do two very different teaching methods affect students' attainment, students' attitudes towards history and their critical thinking about history in the first year of the secondary schools in Saudi Arabia?

To operationalise this research question a number of sub-questions were raised:

1. What is the students' preferred learning style? The researcher addressed this in question 8 of the students' attitude questionnaire (SAQ).
2. How often the learning styles were used in history? Question 9 in the SAQ.
3. Which learning style most affects the students' enjoyment of history? This question was addressed in the students' attitude questionnaire (SAQ). In an item analysis of this questionnaire it is addressed in question 12.
4. Which resource affects students' enjoyment of history? and how often are these resources used in history? Questions 13 and 26 in the SAQ.



5. To what extent do students enjoy history, geography and science? This was addressed in question 24 of the SAQ.
6. Are students intending to study history in higher education? This item was addressed in question 34 of the SAQ.
7. How important a subject do students believe history to be? This item was addressed in question 29 of the SAQ.
8. How much do students like their history teacher? This question was addressed in question 37 of the SAQ.
9. Are there any differences between a control group and experimental group in a pre-test, a post-test and a postponed test in their attitudes towards history?
10. Are there any relationships between students' preferred learning styles and use of these styles in teaching history? This item was addressed in questions 8 and 9 of the SAQ.
11. Are there any relationships between students' preferred learning styles and their enjoyment of these styles? This item was addressed in questions 8, 12, 16 and 20 of the SAQ.
12. To what extent are students used to thinking critically in history? The researcher addressed this question by using the modified Watson-Glazer Critical Thinking Appraisal. It may be noted that the examples which have been included in this test are not specific to history only but they are related to the critical thinking skills.
13. Are there any differences in achievement of critical thinking between students in a control group and experimental group in a pre-test, a post-test and a postponed test of critical thinking? To address this the researcher used a modified form of the Watson-Glazer Critical Thinking Appraisal, adapted for students in the first year of the secondary school in Saudi Arabia.
14. Are there any differences in achievements between students in a control group and experimental group in a pre-test, a post-test and a postponed test of achievement in history ? To address this the researcher developed an



achievement test in history that was applied in three stages as a pre-test, a post-test and a postponed test.

### **4. 3 Research Hypotheses**

This study includes a large scale survey in addition to the experiment. The survey is considered to be a preliminary study. The researcher formulated questions to explore, and it is not appropriate to formulating null hypotheses. With regard to the experimental study, it can be tested using different null hypotheses. In addressing the statement of the research's problem the following hypotheses are proposed, cast in the form of null hypotheses:

1. There will be no significant differences between the control group and the experimental group in the results of the pre-test, post-test and postponed questionnaire of students' attitudes as a whole. This hypothesis relates to questions 1, 2, 3, 4, 5, 8, 24, 29.
2. There will be no significant differences between the control group and the experimental group in the results of the pre-test of questionnaire of students' attitudes to history. This relates to questions 1, 2, 3, 4, 5, 8, 24, 29.
3. There will be no significant differences between the control group and experimental group in the students' attitudes questionnaire on history in the results of the post-test. This relates to questions 1, 2, 3, 4, 5, 8, 24, 29.
4. There will be no significant differences between the control group and the experimental group in the results of the postponed questionnaire of students' attitudes to history. This relates to questions 1, 2, 3, 4, 5, 8, 24, 29.
5. There will be no significant relationships between students' preferred learning styles and use of these styles in teaching history? This relates to question 10.
6. There will be no significant relationships between students' preferred learning styles and their enjoyment of these styles? This relates to question 11.



7. There will be no significant differences between the control group and the experimental group in the results of the pre-test, post-test and postponed test in the test of critical thinking as a whole. This hypothesis relates to question 13.
8. There will be no significant differences between the control group and the experimental group in the results of the pre-test of critical thinking. This hypothesis relates to question 13.
9. There will be no significant differences between the control group and experimental group in the results of the post-test of critical thinking. This hypothesis relates to question 13.
10. There will be no significant differences between the control group and the experimental group in the results of the postponed test in relation to the test of critical thinking. This hypothesis relates to question 13.
11. There will be no significant differences between the control group and the experimental group in the results of the pre-test, post-test and postponed test of achievement in history as a whole. This hypothesis relates to question 14.
12. There will be no significant differences between the control group and experimental group in the results of the achievement test of history in the pre-test. This hypothesis relates to question 14.
13. There will be no significant differences between the control group and the experimental group in the results of the achievement test of history in the post-test. This hypothesis relates to question 14.
14. There will be no significant differences between the control group and the experimental group in the results of the postponed test of achievement in history. This hypothesis relates to question 14.



#### **4. 4 The Parameters of The Research**

Owing to time limitations and to the difficulty which would be involved in studying all school stages in the whole country of Saudi Arabia this study was limited to the first year students of secondary schools, because in the second and third year students join different departments. The primary resource used was the history textbook in the first year of secondary schools. The investigation focused on traditional and inquiry methods. There were, in addition, other resources such as pictures, maps, audio cassettes, handouts and transparencies prepared for the experimental group.

#### **4. 5 Approaches to Research Design**

There are several approaches to research design that are available to researchers; of these the researcher used the historical method, the survey method and the experimental method. These are outlined and justified as follows:

##### **4. 5. 1 The Historical Method**

Historical research has been considered a tool to study the past, and it has been defined as the systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw conclusions about past events (Cohen and Manion, 1994, p.45). This type of research attempts to find out the interrelationship between past, present and future; it has been deemed to make an important contribution to research as Cohen and Manion in their book (1994, p. 44) point out the view of Travers:

- Historical research has been considered a kind of literature review which sets a context for empirical study.
- Historical research has both normative and interpretative features to achieve objectivity in giving precise and carefully scrutinized facts, following the

scientific method that depends on historical evidence, to avoid bias and to give a complete description of the phenomenon under study.

Historical research presents some perspectives on educational problems, it is beneficial in educational reform and predicting future trends. It provides information so that people may avoid making such mistakes as following old adages which no longer meet contemporary requirements, and avoiding the repetition of myths and superstitions (Wiersma, 1980, p. 184). Historical research is different from other methods in that it deals with events which already exist (Cohen and Manion, 1994, p. 49). Moreover historical study helps the researcher to follow the developments of educational theories and practices, finding out how and why they developed. It enables those who have an interest in education to use the preceding practices to evaluate the present (Cohen and Manion, 1994, p. 46). In this approach the researcher can collect data from various primary and secondary sources. (Turney and Robb, 1971, p. 61). Historical research follows the same procedures that have been included in the scientific method (Mouly, 1978, pp. 159-160, Wiersma, 1980, p. 177, Turney and Robb, 1971, 62), viz:

1. Identification of the problem;
2. Collection of data from various sources;
3. Establishing the validity of the data (authenticity of the source, and the validity of its contents);
4. Interpretation of the data.

The limitations of this approach have to be taken in account. One limitation is that the researcher is unable to control, and has no choice regarding, what documents, relics, records and artefacts survive the passage of the time, and he can not make an assumption about the past (Ary et al, 1990, p. 453). Further, the results of the historical method can not be generalized to some extent, because they are sometimes based on one document or evidence with a subjective bias or with some view for long time. (Borg and Gall, 1983, p. 823). Moreover it is not always in the historical context that one event in the past causes the same problem or difficulties in the present, but to



some extent it could be possible to use causal pattern to explain an apparently similar one in the past (ibid, p. 823).

This study uses historical research in presenting the background of teaching methods i.e. inquiry and traditional methods, in order to ascertain their applicability to this study and to education in Saudi Arabia. It gives an outline of critical thinking and examines the importance of questioning. By using a review of the literature, it explains some features of the educational system in Saudi Arabia, stating its relevance to this study with reference to statistical books, census returns, reports issued by the Ministry of Education in Saudi Arabia and books giving details the educational system there. The historical method enabled the researcher to clarify the problem of this study to ascertain the effect of the traditional and inquiry methods on teaching history in the first year of the secondary school. This method established the construction and content validity of the research, as will be discussed through this chapter.

#### **4. 5. 2 The Survey Method**

This type of research is conducted in order to study some large scale situations or phenomena and to compare some new situations with others in the past or present. There are several types of survey: the descriptive survey, the normative survey, and sometimes, the field study (Hillway, 1969, p. 31). The descriptive survey and field study have been used in this study to give a clear picture of the educational system in Saudi Arabia, to describe the features of the traditional and inquiry methods and to investigate students' attitudes towards history in the secondary school in Saudi Arabia. The survey method has been used frequently by researchers when they are attempting to describe or acquire more information about phenomena and to make comparisons. Cohen and Manion (1985) have suggested that the survey method can be used to collect data on the following situations:

- Describing the nature of some conditions or phenomena;
- Identifying standards against which some situations can be compared;



- Determining the relationships between phenomena or events (p. 94).

Additionally (Moser, 1958) has described the survey method in the social studies thus:

To the social scientist, a survey may equally have a purely descriptive purpose, as a way of studying social conditions, relationships and behaviour. The sort of information needed may be how families of different size, composition and social status spend their income; how people are reacting to the latest productivity drive; what relation there appears to be between education and the possibility of moving up the social ladder. In this early, fact-finding stage of the social science there is virtually no limit to the range of topics covered by surveys (p. 2).

The survey approach can serve many purposes in educational research (Morrison, 1993):

- Representing a wide range of the target population;
- Helping the researcher to acquire numerical data;
- Assisting the researcher in manipulating key factors and variables to determine frequencies;
- Computing correlations to see if there is any relationship between certain variables;
- Presenting material that is uncluttered by specific contextual factors;
- Computing data from multiple choice and closed questions;
- Supporting or refuting hypotheses about the target population;
- Helping the researcher to generate precise instrumentation through a pilot study;
- Making generalisations and determining patterns of response;
- Gathering data that can be processed statistically;
- Using large scale data gathering from a wide population to assist the researcher to generalise from some factors or variables (pp. 38-9).

There are several types of data collection in surveys e.g. questionnaire, interview, observational and test data (Engelhart, 1975, p.91). Quantitative methods in surveys include counting, scaling and abstract reasoning on the one hand, whereas the qualitative approach is frequently based on personal understanding, commonsense and introspection (Cook and Rechardt, 1979, p. 22). This type of research enables the

researcher to collect data from a large scale to achieve representativeness in sampling and to help in generalizing from the results (Morrison, 1993, p. 39). In spite of these strengths the survey method nevertheless has some weaknesses which suggest that it is not suitable in certain cases. Morrison (1993) suggests that if the intention is

to catch local, institutional or small scale factors and variables, to portray the specificity of a situation, the uniqueness of a situation and the complexity of the dynamics of a situation, the interpersonal aspects of a programme, the explanations of why a situation occurred or why a person behaved in a particular way or what a person's intentions were in a situation, or how a situation or programme changes and develops over time, then this approach is unsuitable (p. 40).

Furthermore the survey approach does not enable the researcher to be more confident in making certain causal relations between variables unless he finds an explanation for that (de Vaus, 1993, p. 7). Sometimes the survey can provide a great deal of data without answering the researcher's questions (Mitchell and Jolley, 1988, p. 288). The researcher should be aware of the survey when identifying his problem, researcher's questions, choosing the sample and the instruments. In this study the researcher has taken all these points carefully into account.

For this study, the survey method was selected to enable the researcher to acquire much information about required phenomena e.g. students' preferred learning styles, students' enjoyment of resources and their liking of history teacher from a wide range of population to enable the researcher to generalize the results of this study to all students in the Saudi Arabia. In addition this method provides a much fuller context for the data from experimental approach, giving additional background information to supplement and maybe to explain the reasons for the results of the experiments. Mitchell and Jolley (1988) indicated that surveys might be used to collect preliminary data for research, or as a dependent measure in experimental design (p.285). The important point in using the survey method in this study was to collect more information about some of the variables, especially those which are difficult to control in the experiment, such as motivation and interaction.



### **4. 5. 3 The Experimental Method**

The researcher used this method to investigate the effect of two methods which are very different from each other. This type of research enables the researcher to isolate and control variables, something that is not so easily available in other types such as survey or historical methods. This method was suitable and appropriate to achieve the purposes of this study which comprise an evaluation of an experiment with traditional and inquiry methods. The experimental method is used in the field of physical science where the opportunities to conduct experiments in laboratories are available, keeping all the factors constant or under control, with the ability to change or manipulate conditions of the experiment as desired (Hillway, 1969, p. 37). The experimental method was 'imported into' the social sciences (Morrison, 1993, p. 44), being used for the first time in 1890 to study educational problems (Ary and et al, 1990, p. 298). The experiment has been defined as a way of organising the collection of evidence so that an hypothesis may be tested (Moser, 1958, p. 6). It has been defined as the proof of an hypothesis which seeks to hook up two factors into a causal relationship through the study of contrasting situations which have been controlled on all factors except the one of interest, the latter being either the hypothetical cause or the hypothetical effect (Moser, 1958, pp. 6-7). The experimental method is useful to enable researchers, for example, to know if there are any differences between two groups in relation to specific variables, e.g. when they have received a new teaching method for instance, as in the present study which related to investigate the differences between students in the students' attitude questionnaire, achievement test and critical thinking test. Morrison (1993) indicates that this method is useful to evaluate the comparative effects of a particular piece of curriculum innovation or practice in achieving a particular goal (pp. 45-6). This method attempts to control all the variables that might affect the results in order to help the researcher to identify or specify a causal relationship (Bynner et al, 1979, p. 49). Isolating and controlling key variables will help the researcher to be sure that any change in the experimental group is caused by the independent variable. This kind of research can be used to tackle



many educational problems, observe phenomena, make comparisons between two groups to see if there are any differences between them or not, and to offer conclusions after using various statistical tests for data analysis (Morrison, 1993, p. 45). Moreover the experimental method can be used simply. It enables the researcher to put students from the first year of secondary school in two groups, giving them a test before and after a programme, and at the end comparing them to ascertain if there are any significant differences between them or not.

However there are difficulties in using this approach in the social sciences. For example social scientists and educationalists are dealing with complex phenomena which, as Massialas and Cox (1966) have indicated, may be too complex for all the variables to be isolated and controlled:

To test their hypothesis they can seldom identify all variables applicable to their study, and they must observe human affairs as they occur or as they have occurred (p. 93).

It is difficult to control people as one would non-humans in experiments in science laboratories. Morrison (1993) indicates that the experimental model assumes a simplicity of isolating and controlling variables which probably does not exist in the real world of students and teachers (p.46). There is also an assumption to be challenged about the extent to which it is ethical to manipulate human beings. The researcher tried to avoid this problem by explaining the aims of the study to the students and they had the choice whether or not to take part in the experiment. It is clear, therefore, that the researcher in social sciences must be cautious in using the experimental method. Cook and Lafleur (1975) have indicated that in the experimental method though there are important variables that the researcher can infer or hypothesise from certain behaviour, he can never be sure if these variables such as motivation, have been controlled. For example in the case of motivation Cook and Lafleur argue that as far as we know motivation cannot be seen, and cannot be measured, so it must be inferred from certain behaviour (p.111). Indeed the researcher addressed this issue by using the survey method as mentioned before to know more about such variables.

The experimental method includes hypotheses that should contain two important parts, these are the independent and dependent variables that represent some characteristics that might indicate differences in the study (Jaeger, 1988, p. 392). Thus, any experimental method should have an independent variable that the researcher will manipulate and a dependent variable that will be under observation to see what happened to it as a result of this manipulation. In the present study the independent variable will be the inquiry method and the dependent variables will be the results for students - in terms of their achievement test scores, attitudes, and results on the Modified Watson-Glaser Critical Thinking Appraisal.

In addition there are some variables that might affect the experiment, known as 'relevant variables' for example sex, age and time. The researcher has to keep these variables constant, that is keep them from changing, or see that they vary equally and systematically for all groups in the experiment (Cook and Lafleur, 1975, pp. 109-10). The researcher kept these variables constant in that all students were male, their age around fifteen years old and the time of the procedures of the experiment was the same for the control and experimental groups. In educational research it seems that establishing identical experimental and control groups is almost impossible. Turney and Robb (1971) have indicated that:

It is impossible to obtain identical experimental and control groups, so the experimenter settles for two similar groups selected at random from the same population or matched on other important variables (p. 66).

To address this the researcher selected two classes from the first year of the secondary school, having the same age (between fifteen and sixteen years old), all were male according to the educational policy in Saudi Arabia, and studying the same curriculum and taught by one history teacher, and were drawn from the same culture and close socio-economic status, with a similar range of abilities.

Furthermore the researcher should be aware of the '*Hawthorne effect*' which is one of the common factors that may affect the results of the research. Students in the control and experimental groups may realize that they are under study, therefore they



may do their best or (worst) in participating in the programme and that may influence the finding of the study because sometimes they would wish to 'please the experimenter' (Coolican 1994, p. 75). In that case it is necessary to be aware that one important factor could influence the result of research, it is the research itself (Hughes, 1976, p. 97). To address this factor the researcher requested all students who were included in the experiment to act as normal in the lesson.

Using successfully the experimental method can help the individual to demonstrate *why* something occurs. Because the researcher wished to undertake a comparative study of the effects of one important variable in this study the experimental method was adopted to compare the effect of the inquiry method in comparison with the traditional approach. The highly controlled nature of the experimental method might not be out of place in an education system in Saudi Arabia which is marked by a high degree of control, as established in chapter three of this thesis.

The researcher did not use the illuminative method which includes describing, understanding and explaining what is happening in a program, why and with what effects on the respondents, all of these being described by the respondents themselves (Morrison, 1993, p. 51), because the illuminative approach does not help researchers to generalize, it is context specific, it is descriptive, time-consuming and comprises a small scale in spite of its richness of gathering data (ibid, pp. 51-2).

Using the historical method in this study presented the theoretical background of teaching methods and educational system in Saudi Arabia, using the survey method assisted the researcher to gather large amounts of information from students, and the experimental method was conducted to test the effectiveness of the traditional and inquiry methods. These approaches complemented each other in the study, enabling the researcher to gain a full picture of the phenomena under investigation.



## **4. 6 The Instruments of the Research**

The main purpose of this study was to conduct a survey study to explore students' attitudes towards history and their achievement on Modified Watson-Glazer Critical Thinking Appraisal in the first year of the secondary school and to conduct an experiment with two teaching methods, the traditional and inquiry methods, and to compare their comparative effects on students' achievement. Additionally a critical thinking appraisal was undertaken to ascertain the ability of students in the first year of secondary school. Students' attitudes towards history in the first year of the secondary school were studied to see if the inquiry method as an independent variable caused any change in the students' achievement, as a dependent variable. In addition the researcher wished to ascertain if there was any change in students' attitude and critical thinking as a result of being exposed to the inquiry method. To carry out this study; the researcher prepared four instruments as follows:

1. The students' attitudes questionnaire (SAQ) to ascertain students' attitudes towards history in the first year of the secondary school with the whole survey and with the experiment group.
2. A modified Watson-Glazer test of Critical Thinking to ascertain the ability of students in this field with the survey group and experimental group, as the critical thinking represents a skill of the inquiry method.
3. The achievement test to evaluate the levels of the students before and after the experiment.
4. A teaching programme for history, to be followed by students of the experiment group in the first year of the secondary school during the first term of the scholastic year.

These instruments were prepared and piloted before being used in this investigation in order to render them valid and reliable.

#### **4. 6. 1 The Students' Attitude Questionnaire (SAQ)**

One of the purposes of this study was to ascertain the students' attitudes towards history. This information would supplement the data on the experimental method, providing information about motivation, interaction, school and teacher. The researcher chose the questionnaire in order to gather quickly a large amount of information from a large scale survey on the nature of history teaching in the secondary first year. The questionnaire was deemed to be appropriate and represented a direct method of gathering information best understood as impersonal and sometimes anonymous (Nisbet and Entwistle, 1970, p. 32).

The effect of a student's attitude on his performance can be important, as mentioned in chapter one. Mehrens and Lehmann (1980) pointed out:

Some of the factors that must be considered in assessing or appraising an individual's academic performance are (1) mental maturity, (2) motivation, (3) study habits, (4) study skills, (5) attitudes toward the value of an education, teachers, school and course no doubt, how the pupil studies and his attitudes toward education play a significant role in an explanation of such discrepancies (p. 254).

Gronlund (1965) has described an attitude as 'favourable or unfavourable feelings toward some person, group, object, institution or idea' (p.354). Attitudes have been suggested to be a system of evaluative, affective reactions based upon and reflecting evaluative concepts or beliefs that have been learned about the characteristics of a social object or class of social objects (Show and Wright, 1967, p.3). There are several attitudes scales which have been constructed to measure attitudes and they are considered simple, easy and fast, for example:

Thurstone (1929, 1931); the Likert attitude scale (1932); Guttman, (1944) (Show and Wright, 1967, p.13). The Likert scale consists of five alternative answers (strongly agree, agree, undecided, disagree, strongly disagree) and the weight which was given to each item is graduated from 5 (strongly agree) which represents 'the positive attitude toward the object to 1 (strongly disagree) which represents the negative answer (Show and Wright, 1967, p. 233).

In addition, scaling the attitude questionnaire is considered more useful than dichotomous questions because it enables the respondents to vary the degree of their response and intensify their responses as well, for example, from (strongly agree to



strongly disagree), thereby being more responsive to the respondents (Morrison, 1993, p. 76). In other words it allows variation in response. The researcher addressed different questions in the SAQ which included a set of information about the respondents, different learning styles, and different resources according to the measurement scales that should be addressed in such instrument.

Questionnaire data can be grouped into four scales of measurement known as the nominal, ordinal, interval and ratio levels of data. Each kind can be explained as follows (Wiersma, 1980, pp. 211-212; Wiersma and Jurs, 1985, pp. 24-6):

- **Nominal:** This categorises events, groups and objects into two or more classifications that describe differences in relation to one or more characteristics, for example sex and father's job. The categories are discrete.
- **Ordinal:** In this kind of scale the scores are ranked from low to high or least to most. No assumption of equal intervals can be made.
- **Interval:** In this type it is possible to assume equal intervals or equal unit in the scale between the scores.
- **Ratio:** Ratio scale has all the properties of interval data, and, additionally, contains the zero point that indicates the absence of whatever is being measured, it is not used in educational research (Tuckman, 1978, p. 167).

Using a rating scale in the questionnaire is desirable as it has many attractions in that it is easy to use, enabling researcher to use different methods of measuring and organizing respondents' answers in numerical data. Irwin and Bushnell (1980) pointed out the following qualities of a rating scale (pp. 212-3):

- Developing and using the scale are easy.
- Rating scales are easy to score and quantify.
- Rating scales can help the researcher to obtain a score for one student that can then be compared to the scores of other students or to other data gathered about the same student.
- Rating scales are straightforward to use, they can be used by the novice researcher.



In addition to the Likert rating scale the researcher asked questions about the characteristics of teachers. These were formulated by following the semantic differential scale which describes difference in the meaning between two concepts as a function of the differences, in their respective allocations within the same space, comprising bipolar adjectives that indicate for each item pairing of concepts with a scale of seven points (Snider and Osgood, 1969, pp. 58-64) for example:

helpful-----helpless

careful-----careless

happy -----sad

The semantic differential scale has widespread use in measuring attitudes and in such varied fields as sports, health, family issues, industrial/organisational considerations, and ecological concepts (Phillips, 1988, p. 430). The semantic differential scale is useful in three contexts: evaluative (e.g. valuable-valueless, good-bad) potency (e.g. small-large, weak-strong) activity (e.g. quick-slow, active-passive) (Osgood et al, 1975). The researcher selected the rating scale and semantic differential scale because they are simple, fast, easy and allow for variation in responses.

The researcher used a five point semantic differential scale instead of seven points to maintain the uniformity in all items in the Students' Attitude Questionnaire (SAQ) (e.g. achieving parity with the Likert scales). This facilitated comparison and correlation. The researcher used the Likert scale and semantic differential scale as mentioned above because it would be straightforward to organize the answers of the individuals, gaining numerical data for data analysis.

A questionnaire can be administered with a whole group at the same time, ensuring that questionnaires are completed (Oppenheim, 1966, p.36). Moreover it enables the researcher to have 'accumulation of data' (Walker, 1985, p.91). It consists of a number of questions or items (Wolf, 1988, p.478). It is seen as an essential scientific instrument for measurement and for collection of specific data (Oppenheim, 1992, p.100).

Care needs to be taken in the design and preparation of a questionnaire. Cohen and Manion (1985) point out that the ideal questionnaire should be clear, unambiguous and uniformly workable. It should help the respondent to be willing in answering and encourage him to be more co-operative in giving the real answer (p.103). A questionnaire should contain a set of questions or items about the subjects, matters, attitudes and some open-ended questions derived from more rigidly constructed scales or tests (Bynner et al, 1979, p. 52). This encourages the students to answer them and gives them more opportunities to express their viewpoints freely.

The SAQ was developed to build on the advantages of the questionnaire as follows (Henerson et al, 1987, pp. 28-9):

- The questionnaire allows anonymity of the students, encouraging their willingness to answer the questions.
- It provides sufficient time to help students think and answer accurately.
- Using a questionnaire enables the researcher to gather data from a large number of students simultaneously.
- All the students answer the same statements and at the same time (uniformity).
- Data collected by using the questionnaire can be analysed more easily than data yielded from interviews.
- There is a chance to administer the questionnaire directly or by post to students.

Hopkins (1985) demonstrated the advantages and disadvantages of the questionnaire for classroom research in the table 3.1 (p. 74):

Table 3.1 The Advantages and Disadvantages of the Questionnaire.

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• easy to administer; quick to fill in;</li> <li>• easy to follow up;</li> <li>• provides direct comparison of groups and individuals;</li> <li>• provides feedback on: attitudes, adequacy of resources, adequacy of teacher, help, preparation for next session, conclusion at end of term;</li> <li>• data is quantifiable.</li> </ul>	<ul style="list-style-type: none"> <li>• analysis is time consuming;</li> <li>• extensive preparation to get clear and relevant questions;</li> <li>• difficult to get questions that explore in depth;</li> <li>• effectiveness depends very much on reading ability and comprehension of the child;</li> <li>• children may be fearful of answering candidly;</li> <li>• children will try to produce 'right' answers.</li> </ul>

In addition to there are problems of falsifiability and differences (unknowable) in interpretation.

The advantages are important for the present study because they enabled the researcher to distribute the questionnaire to 351 students, to apply it for the experimental group three times and to check all the answers of the respondents in a short time. The researcher adhered to the above attractions in order to make the questionnaire clear, simple and understandable.

In formulating the questions of the SAQ, the researcher took care to address the following points to avoid the difficulties outlined above and to make students feel more comfortable when answering the questionnaire (Miller,1991, p. 142):

- Trying to use simple language to be appropriate to individuals.
- Using straightforward vocabulary.



The researcher addressed these two points during the pilot study and asked students to record difficult questions and unclear vocabulary.

- Avoiding long questions.
- Avoiding the assumption a priori that the respondent possessed factual information or first hand opinions. This was addressed by asking students to leave blank those items that they were unable to answer.
- Establishing the frame of reference clearly. In this respect the researcher explained in more detail the aims of the research to the students clearly and precisely, as mentioned before.
- Suggesting "all possible alternatives to the individual" and giving him the freedom to participate in the experiment willingly and voluntarily, with the opportunity to withdraw.
- Avoiding ambiguous questions.
- Avoiding biased or awkward questions.

The researcher addressed these two points by conducting the pilot study and by using simple and straightforward words and sentences.

In relation to the problems of falsifiability and interpretation the researcher addressed that by informing the students that all their answers would be used for the sake of the research and requesting them to give correct and clear answers taking care with precision and honesty.

The SAQ comprised 67 questions in the first version; some of these were closed-questions that explored teaching styles, technology resources, students' feelings towards history teachers. At the end of each closed question there was an open question to give students more opportunities to express their feelings, suggestions and observations. Some items of the teaching styles were derived from a questionnaire developed by Ronsano. In accordance with the literature on questionnaire design, the questionnaire began with 'simple factual questions' about the respondents to give them initial encouragement (Nisbet and Entwistle, 1970, p. 47). Here the researcher asked factual nominal data questions about the type of the school, student's father's job,

student's mother's job, major, student's grades in some subjects, weekly study hours at home and weekly study hours at school, i.e. background variables, and to offer a description of the background of students and their socio-economic status, and to ascertain which variables were more important than others (see appendix 2 for the students' attitude questionnaire SAQ).

Rating scale items contained five points. ('not at all', 'very little', 'a little', 'a lot' and 'very much') which were considered to be easy, simple and fast, as mentioned before and featured on the following questions of the SAQ: Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q24, Q25, Q26, Q29, Q30, Q31, Q34, Q35, Q36, Q39, Q40, Q41, Q44, Q45, Q46, Q49, Q50, Q51, Q52, Q53, Q54, Q55, Q56, Q57, Q58. A second scaling was 'not at all important', 'very little importance', 'a little important', 'a lot of importance', 'very important' (for instance Q59, Q60, Q61, Q62, Q63, Q64). Some of the questions took the following values: 'very easy', 'easy', 'sometimes easy/hard', 'hard', 'very hard' (such as in Q65, Q67). There was a set of questions that measured students' feelings, moving from 1 to 5, (for example in Q22, 23, 26, 27, 32, 33, 37, 38, 42, 43, 47, 48). In addition there was one question that had the value of YES/NO (Q66). The researcher did not use many dichotomous questions because they do not give opportunities to students to vary their responses and to know the degree of easiness or difficulty, high or low and liking or disliking. It was necessary to use rating scales to help the students to restrict their answers for ease of coding and analysis.

To make the questionnaire more valid and reliable the researcher followed several procedures. Validity is defined as the extent to which the instruments measure what the researcher wants them to measure. As Henerson et al (1987) pointed out, validity must answer the question: Is the instrument an appropriate one for what needs to be measured (p.133)? There are several kinds of validity: content validity, construct validity, predictive validity, concurrent validity and jury validity. These are discussed below.



### *Content Validity*

Content validity requires the researcher to ensure that the coverage of content in the questionnaire is satisfactory. Content validity requires the comprehensive and representative selection of items. The researcher addressed content validity in the SAQ by comparing its items with all variables that might affect the experiment such as learning styles, perceptions of the importance of history, using different resources and enjoyment of these resources.

### *Construct Validity*

This kind of validity has been defined as the extent to which the researcher can be sure that it represents the construct whose name appears in its title (Henerson, 1987, p. 136). To address this kind of validity the researcher was careful to root his theoretical framework of teaching methods and the importance of studying history within a literature review.

### *Predictive Validity*

Predictive validity has been used when the researcher wishes to predict the future behaviour from the results of a test. In order to address predictive validity it is necessary to carry out the test and then wait until the behaviour has occurred to ascertain the correlation between predicted and actual outcomes. This kind of validity is useful in predicting some features of students' behaviour in the future (ibid, p. 95). The researcher did not use predictive validity because it was not relevant to this study in that there was nothing to be predicted.

### *Concurrent Validity*

Concurrent validity requires the researcher to know the extent to which the results of his questionnaire or test agree with the results gained by using other instruments at the same time. Henerson and et al (1987) indicated that concurrent validity is useful in circumstances that require a quick estimate of the current state of a group's attitudes or abilities (i.e. if the researcher has had to reduce the time spent in testing). Concurrent validity was addressed by comparing the SAQ with the



achievement test, the Modified Watson-Glazer Critical Thinking Appraisal and the teaching programme to include all needed items.

In addition the researcher used 'jury validity', giving the questionnaire to some experts in the field. This questionnaire was offered first to staff at the School of Education in the University of Durham, and then to staff at the King Saud University in Riyadh in Saudi Arabia (see appendix 3). They returned the SAQ to the researcher with some remarks as follows:

- They appreciated that the SAQ was comprehensive and well-structured.
- They said that the SAQ was too long, that it had to be reduced in length in order to be clear for students in the secondary school who otherwise might become tired when responding to it. The researcher addressed that by reducing the content of SAQ and the number of the questions became 38 instead of 67.
- To reduce the content of the questionnaire. There were initially several questions about Geography, Arabic and English language and science along with history; the researcher included only one subject from the natural science (science) and one human science (geography) and eliminated the items referring to the Arabic and English language.
- The members of the jury commented that the question 6 which related to the teacher's age was of little importance, therefore the researcher omitted it.
- They suggested some alterations for writing some of the items in order for them to be clear and easy for the respondents to understand and answer simply.
- Some of them suggested moving Q11 (about history teaching hours in the timetable at school) in order that it would be the last question as long as it was constant for all students, so the researcher moved this question to the end of the questionnaire and it became question number 38.
- They recommended that the researcher put some open-ended questions at least at the end of each section in order to let students express about their perceptions, suggestions and remarks freely. The researcher addressed that by including some open-ended questions at the end of each section (questions 9,

10, 11, 12, 16, 20 and at the end of the whole questionnaire) which stated that if students had any comments or suggestions, not to hesitate to state them.

- They recommended the researcher to check the students' understanding of all the terms that has been used in the SAQ. The researcher addressed that through the pilot study by asking the respondents to comment on any difficulties or any ambiguous words.
- Some of the staff suggested that in the questions that related to the characteristics of the teachers and students, it would be useful to put the positive qualities on one side and the negative qualities on the other side of the semantic differential scale in order to avoid confusing students. The researcher followed the experts' suggestion in relation to this.
- Others suggested that in the questions about teachers' and students' feelings it would be preferable to omit questions that related to other students because it would be difficult for students to comment on all other fellows in the class in a single question. The researcher omitted all these questions which related to students' description of their fellows (questions 23, 28, 30 in the pilot study version).
- In relation to questions 8 and 9 which were about the knowledge and likes of the history teacher, some of the experts suggested that it may be better to move these two questions to the end of the questionnaire in one section to avoid confusing the students. To achieve that the researcher moved these two questions to the end to become questions 36 and 37.
- With regards to the resourcing of practical equipment included in questions 13, 17, 21, 26, 27 and 28 with history, geography and science, they suggested omitting items relating to history and geography, but leaving it with regard to science.
- The researcher was recommended to include an explanatory sheet of some of the terminology which might be difficult for students (e.g. students formulate hypotheses, students make generalizations and students distinguish between



strong and weak arguments). The researcher wrote an explanatory sheet to include some of these items and put it at the beginning of the SAQ.

The researcher also conducted a reliability test of the instruments. The term reliability has been referred to as the extent to which test or questionnaire data seem consistent when the researcher gathers them on two periods to avoid any unpredictable error (Henerson, 1987, p. 147). Borg (1981) argues that it is important and easier to conduct the reliability of a test than to conduct the validity (Borg, 1981, p. 97). To compute reliability there are several procedures available to the researcher (e.g. test-retest reliability, split-half reliability and equivalent forms reliability). In the test-re-test method the researcher applies his test or questionnaire to the students twice and then by calculating the correlation coefficient he would be sure about the reliability of his instrumentation, whereas in using the split-half test the researcher has to apply his instruments once and then compute the coefficient of reliability (Morrison, 1993, p.164). The researcher in this study addressed the reliability of his instruments by using the test-retest method of reliability with the students' attitude questionnaire (SAQ) because it was easy to administer it and he wanted to be sure about the stability of responses over time. In order to ascertain the level of reliability the researcher undertook a pilot study in the schools to test the students' attitude questionnaire (SAQ) on a group of students, to be sure about its clarity, understanding and the time limit for answering it. Data from the pilot study were also processed to gather coefficients of reliability (see below).

### *The Pilot Study*

The pilot study was undertaken to yield a picture of the wording, ordering, sequencing of questions, and the reduction of non-response rates (Oppenheim, 1966, p. 25). Mouly (1978) indicates the importance of a pilot study:

The pilot study is a wise investment in that it provides insights into the nature of the study that can be obtained in no other way and brings out unforeseen difficulties at a time when they can still be resolved (p. 69).



Piloting the instruments enables the researcher to know how long the data take to be gathered from the respondents, to be sure about the clarity of the instrument, to ascertain the extent to which the students answered all the items, which items they could not answer and so on. The intention of the pilot study is to get the bugs out of the instrument (Bell, 1987, p. 65). The pilot study is used not only to check the linguistic aspects of the instruments but to clarify other features, e.g. sampling frames, covering letters, page layout, remainders or call-back procedures, statistical and data processing arrangements (Bynner et al, 1979, p. 53). The pilot study also enables the researcher to check the adequacy of the research procedures and the measures that have been selected for the variables. The research will also be able to resolve some of the unexpected difficulties that might appear at this stage (Ary et al, 1990, p.109). A pilot study enables refinement of the instruments and the trialing of aspects of the data collection process to be undertaken.

The researcher conducted the pilot study of the SAQ at Khamis Mushait secondary school in Saudi Arabia. One class of the first year of secondary school pupils was selected to carry out the pilot study, comprising 26 students, after withdrawing 6 students whose attendance was unreliable. The SAQ was trialled during the period between 6th and 20th of June, 1993 and after two weeks was re-applied to the same sample so that the test-retest measure of reliability could be computed. Notes were kept on the difficulties and queries which students experienced during the trial study of the SAQ.

To calculate the reliability of the SAQ the researcher analysed all the data gathered from the trial study by using the Statistical Package for the Social Sciences, calculating Cronbach's Alpha (the coefficient of reliability) (SPSSx User's Guide, 1988, p. 876).

Table 3.2 below shows the reliability of the students' attitude questionnaire as follows:

**Table 3.2 The Alpha Reliability Coefficient of the Students' Attitude Questionnaire**

Items	Alpha Reliability Coefficient	Standardised Item Alpha
2-100	.9427	.9523
101-200	.9456	.9455
201-300	.9324	.9289
301-400	.9053	.9037
401-500	.9590	.9490
501-544	.9369	.9279

Thus, it is clear that the students' attitude questionnaire (SAQ) has high reliability.

#### **4. 6. 1. 1 The Final Version of the Students' Attitude Questionnaire SAQ (F)**

Following the pilot study the researcher made minor revisions to the students' attitude questionnaire (SAQ). The SAQ become shorter than the first version conducted in the pilot study and the number of questions was reduced to 38. These requested information from the respondents about their father's job, mother's job, major, their grades in some subjects and hours of study at home. Some of the questions requested information about teaching styles in history, geography, and science. Others dealt with some characteristics of teachers of history, geography, and science. There was a set of questions about the use of resources in history, geography, and science. Respondents were asked why and how history, geography and science were seen as important subjects. There were open-ended questions at the end of each question to give students opportunity to address their opinion and suggestions. Table 3.3 below illustrates all sections of the SAQ (see appendices 2 for SAQ in English and 17 in Arabic):

Table 3.3 illustrates the SAQ Questions.

Number of Questions	Descriptions of Questions
Q1	Identification number.
Q2	Type of school.
Q3	student's father's job.
Q4	student's mother's job.
Q5	intended major of student.
Q6	student's grades in some subjects.
Q7	the number of hours spent studying at home.
Q8	students' preferred learning style (16 items).
Q9	use of learning styles in history lessons (16 items).
Q10	use of learning styles in geography lessons (16 items).
Q11	use of learning styles in science lessons (16 items).
Q12	students' enjoyment of learning styles in history (16 items).
Q13	students' enjoyment of resources in history (8 items).
Q14	students' description of the history teacher (9 items).
Q15	the content of the history curriculum and its effect on students' enjoyment.
Q16	students' enjoyment of learning styles in geography (16 items).
Q17	students' enjoyment of resources in geography (8 items).
Q18	student's description of the geography teacher (9 items).
Q19	the content of the geography curriculum and its effect on students' enjoyment.
Q20	students' enjoyment of learning styles in science (16 items).
Q21	students' enjoyment of resources in science (9 items).



Q22	student's description of the science teacher (9 items).
Q23	the content of the science curriculum and its effect on students' enjoyment.
Q24	students' enjoyment of history, geography and science.
Q25	students interest in trying different learning styles.
Q26	using resources in history (8 items).
Q27	using resources in geography (8 items).
Q28	using resources in science (9 items).
Q29	the importance of history, geography and science.
Q30	why and how history is important (8 items).
Q31	why and how geography is important (8 items).
Q32	why and how science is important (8 items).
Q33	how easy they find history, geography and science.
Q34	the student's intention to study these subjects at higher education.
Q35	the ease of memorizing and remembering in these subjects
Q36	the knowledge of the history teacher.
Q37	how much students like their history teacher.
Q38	the number of hours in the timetable of school.

The researcher precoded the questionnaire to facilitate statistical processing of data, so that computer analysis could be used quickly to select relevant data to answer the research questions (Morrison, 1993, p. 154) (see appendix 2).

#### **4. 6. 2. 1 The Watson-Glazer Critical Thinking Appraisal (WGCTA) (Watson and Glazer, 1991)**

The aim of using this test in this study was to determine the achievement of the Saudi students in the secondary first year in terms of critical thinking (see appendix 4 for a blank example of the test). This ability is an element of the inquiry

method, as indicated in the previous chapter. Even though much has been written about critical thinking the researcher found only one test of critical thinking- the WGCTA.

Since the objectives of education in Saudi Arabia, the objectives of the secondary stage and the objectives of history teaching have emphasized that students should be trained to use their thinking skills and to think critically, the researcher wished to investigate the extent of students' knowledge and skills in critical thinking, hence this test was deemed appropriate.

The WGCTA has a long history of many developments over more than 50 years during which it took three forms: A, B and C. The WGCTA has become widely used in the UK especially for management assessment and recruitment (Watson-Glazer, 1991). The C form was anglicised and became an anglicised copy in 1991. The WGCTA consists of five exercises that require the application of the skills of analytical reasoning which connect with the skills of the inquiry method. These skills are applied in a set of data or information that address in a set of spoken and written materials situations which people could meet in various real-life situations. Each item contains newspapers, magazine and media material which includes some comments and assertions that must not be accepted without critique or queries (p.3). These five exercises are as follows:

1. Exercise 1. Inference: this involves evaluating the validity of inferences which are drawn from a series of factual data or statements.
2. Exercise 2. Recognition of Assumptions: this involves identifying unstated assumptions or presuppositions in a series of assertive statements.
3. Exercise 3. Deduction: this involves determining whether certain conclusions necessarily follow from the information given in statements.

The previous three sections may match the comprehension level of Bloom's Taxonomy (pp. 95-6).



4. Exercise 4. Interpretation: this involves weighing evidence and deciding if the generalisations or conclusions that derive from the given statements are warranted.

This comes in harmony with the interpretation level of Bloom's Taxonomy (p. 94).

5. Exercise 5. Evaluation of Arguments: this involves distinguishing between arguments that are strong and relevant and others that are weak and irrelevant to the question (p.3).

This comes to match with the evaluation level of Bloom's Taxonomy (p. 185).

In addition these exercises are designed to measure different aspects of critical thinking that are interdependent e.g. inference, recognition of assumptions, deduction and interpretation. The test requires answers to two kinds of items: some items require the students to think critically about statements involving 'neutral' matters, for example the weather, scientific facts or experiments about which students have no strong feeling or bias. Other items, approximately parallel in logical structure and related to political, economic and social issues (ibid, p. 4), include matters on which some of the students may have emotional feelings and bias or prejudices. The teaching of history needs to train students to have an objective view in studying the events of the past. As this test is considered as a test of power rather than a test of speed there is no rigid time limit on it. The 80 test items can be completed and answered in about 40 minutes.

The WGCTA is used in one of five ways as follows (Watson and Glazer, 1991, p. 37):

1. As a predictive instrument to give an estimate of potential success in certain types of occupations in which critical thinking is known to play an important role, and in staff appraisal or the selection of persons for those occupations.
2. As a measure of critical thinking achievement in industrial and executive training programmes in which an attempt is made to develop critical thinking abilities; and in the selection of persons for those training programmes.
3. As a measure of critical thinking achievement in educational evaluation in secondary and further education programmes.
4. As an instrument for psychometric appraisal in situations where knowledge of an individual's critical thinking characteristics might contribute to the success of any training effort.



5. As a research tool to determine the relationship between critical thinking abilities and traits.

In the original version of the WGCTA the face validity, the content validity, the concurrent validity and the construct validity are high when correlated with different test such as the Otis-tennon Mental ability Tests and the California Test of Mental Maturity (ibid, 1991, pp. 53-61). The test had a high degree of reliability, calculated by using the split-half method, dividing the test into two halves and then calculating the correlation coefficient. The correlation coefficient reported is 0.73, reflecting an acceptable level of stability of the measure over time (ibid, p. 52).

#### **4. 6. 2. 2 The Modified Watson-Glazer Critical Thinking Appraisal MWGCTA**

To use the WGCTA in this study the researcher translated it into Arabic and tried to made some alterations to the examples to adapt them to the Saudi students' environment and to avoid some of the items which have not been suitable to Saudi society. Care was taken to render them clear and simple. Examples of the alterations of the MWGCTA can be explained as follows:

##### **Exercise One:**

The researcher altered an English teacher to a history teacher in the first statement. The second statement that related to an example about newspaper was changed to a new statement that has been written about a test applied in the intermediate school to measure the ability of students to memorize and remember facts and knowledge.

##### **Exercise Two:**

In statement four (item 26) the researcher used the phrase 'cultural and linguistic differences' instead of 'ethnic and political differences'.

##### **Exercise Three:**

In statement two (item 37) the researcher omitted 'Tolstoy's War and Peace novel' and made it just 'War and Peace' because students would have no idea about Tolstoy. The researcher prepared a new statement instead of statement five which is

about the political and radical parties because this kind of statement has not been known in Saudi Arabia.

#### Exercise Four:

Statement two referred to fourth and fifth year GCSE students in the UK, so the researcher referred to second and third year of secondary schools to make it clear and understandable for students (i.e. a matching group of students). The researcher eliminated the phrase 'of one of the country's political groups' because students would have no idea about it.

#### Exercise Five:

The researcher used the name of the Kingdom of Saudi Arabia instead of the United Kingdom in the example to make the picture clear for the students. Statement two which relates to 'should the government take over all the major industries in the country' changed to 'should the teacher's role be confined only to giving facts to pupils' and statement five about the government income was changed with a new statement about development of teachers' level at elementary stage.

To make this test valid after the alterations the researcher applied another round of jury validity. After that the researcher made final amendments, adding some examples from the Saudi context to give students more opportunity to understand the content of this test very clearly as indicated earlier; it was then translated into Arabic, the mother tongue of the students. This was undertaken to maintain validity and reliability in the test. Face validity and content validity were addressed by jury validity in which the test was offered to experts in education in the College of Education in Abha in Saudi Arabia. The member of the 'jury' reported that the test might be new for the students in this stage, requiring care, therefore, to make the Arabic version clearer and more simple, and suggesting some alterations to the Arabic version.

The reliability of the Modified Watson-Glazer Critical Thinking Appraisal was undertaken using the split-half method also, the same method that was used with the original copy of that test. The Appraisal was divided into two parts, the first part



including the following sections in accordance with the original copy as mentioned previously:

1. Inference (items 1-6).
2. Recognition of assumption (items 19-21, 25-27, 31-32).
3. Deduction (items 36-38, 45-48).
4. Interpretation (items 52-54, 57-59, 62-64).
5. Evaluation of arguments (68-70, 74-80).

The second half consisted of the same sections but with different items as follows:

1. Inference (items 7-16).
2. Recognition of assumption (items 17-18, 22-24, 28-30).
3. Deduction (items 33-35, 39-44).
4. Interpretation (items 49-51, 55-56, 60-61).
5. Evaluation of arguments (items 65-67, 71-73).

A pilot study was conducted at the same school (Khamis Mushait secondary school) with the same group of students, and to compute the reliability of the Modified Watson-Glaser Critical Thinking Appraisal the researcher analysed the data gathered from the trial study by using the Statistical Package for the Social Sciences (SPSS), computing Cronbach's Alpha (the coefficient of reliability). Table 3.4 illustrated the reliability coefficient as follows:

**Table 3.4: The Modified Watson-Glaser Critical Thinking Appraisal  
the Alpha Reliability Coefficient:**

Items	Alpha Reliability Coefficient	Standardised Item Alpha
2 (split-half test)	.1701	.2084

From that it seems that the reliability coefficient for the Modified Watson-Glaser Critical Thinking Appraisal was acceptable. The researcher also revised the Modified WGCTA, corrected the translation once again to help respondents to



understand this test very clearly, and prepared the students' answer sheets which requested students simply to put a tick or fill in the circle under the appropriate headings after reading the statement precisely. Indeed the answer sheet was easy and simple for students. See appendices 4 and 5.

#### **4. 6. 3. 1 The Achievement Test**

Evaluation and measurement are widely used to determine outcomes in many educational studies and in schools. The measurement of students' achievements can enable teachers and researchers to ascertain the level of students' achievement and determine how much they have learned from the subject or course. Additionally an achievement test plays a fundamental role in all types of instructional programs and has been considered a tool that is widely used in evaluating students' achievement in the classroom (Gronlund, 1982, p. 1). Gronlund (1982) has defined an achievement test as a systematic approach for measuring the outcomes which students have learned and this would be at the end of studying a unit or course of activity (ibid, p.1). The aim of an achievement test is to evaluate the achievement of students in the subject that they have studied at the end of the study period, to know the problems of learning, the acquisition in students of skills and other instructional purposes (Gronlund, 1965, p.103). The achievement test can be used to give teachers and researchers greater clarification of students' levels of performance in all stages of work. Thorndike and Elizabeth (1961) indicated the functions of the achievement test as motivation, diagnosis, instruction, defining the teaching objectives and certifying students (1961, pp.27-9).

There are several types of evaluation in which the achievement test is useful. Gronlund (1985) explained that the evaluation of students' performance can be classified as placement evaluation, formative evaluation, diagnostic evaluation and summative evaluation (p.11), and the latter is depicted in the achievement test that is accomplished at the end of the learning and teaching process.

In preparing achievement tests it is necessary to bear in mind several points or standards; Gronlund, (1965, pp. 103-4), Chase, (1978, pp. 10, 104), Marshall and Hales, (1977, pp. 15-36) have argued that it is important to address the following steps in preparing an achievement test:

- The objectives of the outcomes of learning in the students' behaviour to see to what extent students acquired the desired skills.
- The content of the subject to clarify the lessons to be covered by the objectives.
- Providing a table of specifications to present which of the objectives related to that lesson or that section.
- Phrasing of the items of questions to include different kinds of questions and essay questions.

These elements are discussed below.

#### **4. 6. 3. 2 The Objectives of the Achievement Test**

There are several types of objectives which include the following (Morrison and Ridley, 1988, p. 75):

1. Specific statements of intent;
2. Behavioural objectives;
3. Expressive objectives.

In this study some of the objectives of the achievement test have been written in behavioural objectives because they are observable and measurable whereas others have been presented just as specific statements of intent, as in some situations behavioural objectives cannot be used or formulated in clear-cut observable behaviours which are measurable (Taylor and Richards, 1985, p. 64).

The most important thing in constructing any test is to define its objectives, stating what the student was supposed to have achieved. Thorndike and Elizabeth (1961) argued that the objectives should be stated or formulated in terms of student



behaviour. and all the activities that enable students to display and achieve the objectives should be clarified (Thorndike and Elizabeth, 1961, p. 30).

The achievement test devised here was concerned to measure the outcome of students' learning of secondary first year history. Before mentioning the objectives of the achievement test it is therefore necessary to address the objectives of the history curriculum in the first year of secondary school in accordance with the prescribed history textbook as follows:

- Students should understand that the message of the Prophet Mohammed existed to call all human kind to Islam.
- Students should be able to expose the worship of idols.
- Students should be able to understand why the Prophet Mohammed disliked the life of his people.
- Students should know the meaning of the term 'idols'.
- Students should be able to explain the most important virtues of the Prophet Mohammed.
- Students should realise the value of honesty and truthfulness.
- Students should provide evidence of the wisdom of the Prophet Mohammed.
- Students should give an explanation of why the Prophet Mohammed spent much of his time in the Hira Cave in Mecca.
- Students should understand how the Prophet Mohammed received the revelation.
- Students should be able to evaluate the magnificence of Islam.
- Students should be able to clarify the ways which the Prophet Mohammed followed in calling people to Islam.
- Students should infer why the message of the Prophet Mohammed remained secret for nearly three years.
- Students should be able to deduce the main aim of the holy war (Jihad) of the Prophet Mohammed.



- Students should be able to interpret why the Prophet Mohammed began his holy war after he had resolved the problems of migration from Mecca to Madinah.
- Students should analyse the effects of the Al-Hudaibyah agreement between Muslims and the Quraish tribe.
- Students should analyse the forfeit that Muslims paid in the Ohod battle.
- Students should extrapolate why the Prophet Mohammed agreed to the Al-Hudaibyah agreement.
- Students should understand the lessons of the Prophet Mohammed's patience.
- Students should infer lessons from the story about the Prophet Mohammed and his companion Omer bin Al-Khatib when he saw the Prophet Mohammed asleep on the floor.
- Students should be able to depict the humility of the Prophet Mohammed.
- Pupil should recognise the meaning of justice.
- Students should be able to write a description of the asceticism of the prophet Mohammed.

One can see that several verbs used in these objectives are sympathetic to critical thinking and the inquiry method, e.g. 'understand', 'expose', 'explain', 'provide evidence', 'evaluate', 'infer', 'deduce', 'interpret', 'analyse', 'extrapolate', underlining the importance of the inquiry method and justifying the use of the test of critical thinking.

#### **4. 6. 3. 3 The Objectives, Content and Form of the Achievement Test**

According to the prescribed history textbook and the teaching programme the researcher addressed the objectives of the history curriculum of the first year of secondary school as follows in an item analysis of the achievement test (see appendix 6 for the achievement test):

##### **SECTION ONE:**

- Students should be able to understand how the Prophet Mohammed behaved in his holy war.

- Students should recognize life in the unenlightened age.
- Students should be aware of the wisdom of the Prophet Mohammed.
- Students should know some names of the Prophet Mohammed's followers.
- Students should be able to distinguish why Muslims missed the first chance for victory in the battle of Ohud.
- Students should know the names of some places where battles occurred.
- Students should be able to interpret the most important aims of studying the Prophecy and biography of the Prophet Mohammed.
- Students should recognize the reasons why Muslims are encouraged to tolerate unbelievers.

These objectives were addressed in question 1 which consisted of 15 items; students were requested to circle the correct answer.

#### **SECTION TWO:**

- Students should be able to distinguish between correct and incorrect answers.

This objective was stated in question 2, containing 6 items, and students were requested to put a tick (✓) in front of the correct item and a cross (X) in front of the incorrect item in addition to correcting the wrong item.

#### **SECTION THREE:**

- Students should be able to match several names, places, and facts.

This is addressed in question 3 which contained five items, with students required to match items in column A and column B.

#### **SECTION FOUR:**

- Students should be able to put the suitable word in its suitable place.

The researcher addressed this objective in question 4 in which students were requested to fill the blank with a suitable word. The question contained five items.

#### **SECTION FIVE:**

- Students should be able to evaluate and give their opinion about some features of the Prophet Mohammed's life.

It has been stated in question 5, consisting of two items (A, B), that students should infer and evaluate the honesty and softness of the Prophet Mohammed.

#### **SECTION SIX:**

- Students should be able to give an explanation for events that occurred in the time of the Prophet Mohammed and their opinions about some events.

This objective was represented in question 6 in which students were required to discuss and evaluate the "AL-Foodol Alliance".

#### **SECTION SEVEN:**

- Students should be able to describe, infer, and compare from information given.

This objective was addressed in question 7. It consisted of a passage in which students were requested to describe, evaluate and judge the private life of the Prophet Mohammed.

#### **SECTION EIGHT:**

- Students should be able to infer and judge from small passages which describe some features of the Prophet Mohammed's life.

This objective was addressed in question 8 and students were required to read the passage, conclude and judge the features of their Prophet's life.

#### **SECTION NINE:**

- Students should be able to express themselves about, and discuss one of the important aspects of, the personality of the Prophet Mohammed.

This objective was addressed in question 9, containing an essay question about the asceticism of the Prophet Mohammed, with students requested to feel free in expressing themselves and discussing that topic in detail.

In accordance with the prescribed history textbook, (1993) which was issued by the Ministry of Education the contents of the achievement test focused on the following lessons:

The Prophet Mohammed's life before his prophecy.

The Prophet Mohammed calling of people to Islam.

The Prophet Mohammed in the holy war (Jihad).



The Prophet Mohammed in his private life.

In addressing the type of questions that may be included in the achievement test Gronlund (1982) argues that there are two major points to bear in mind: one of them relates to the learning outcomes that prescribes items to measure the outcomes, and the other is relevant to the quality of the item that might be constructed (Gronlund, 1982, p. 37). The achievement test should serve a variety of objectives and use essay questions to match the individual differences between students. An objective test may be useful to measure the knowledge outcomes because it can be corrected quickly and objectively, it is easy to adapt to specific learning, and it can provide for adequate sampling of student achievement (ibid, p. 37). Students can be given freedom in the essay tests to express themselves in their own answers and be allowed to select, organise and present their answers in essay form (Gronlund, 1965, p.104). In contrast with an open-ended essay test the objective test can be constructed to require that students limit their answers, so they have no freedom to give their own answers. In a closed test students must choose from a selection of alternative answers, or supply the correct word, number, or symbol, making objective tests quick, easy and accurate (ibid, p. 106). Thorndike and Elizabeth (1961) have compared 'open' essay type and 'closed' objective tests as follows: in essay tests students are able to organize their own answers in their own words, answering small numbers of questions and producing complete and precise answers. On the other hand, students in objective tests work with a completely structured task, choose from a limited range of alternative answers to each of a large sample of items and gain a score according to each answer (pp. 42-8). In the achievement test devised, the researcher not only used a mixture of different types of question but constructed these carefully so that more closed topics (lower-order) were matched to closed test items (e.g. multiple choice and filling the space with a word) and more open-ended topics were matched to open-ended types of test items, e.g. essays and free writing.

The researcher formulated the questions for the achievement test in accordance with Bloom's (1956) *Taxonomy of Educational Objectives*. This helped to

prepare precise and varied items that could be comprehensive, particularly in the cognitive domain, to include: knowledge, comprehension, application, analysis, synthesis and evaluation (which represents high order thinking). The achievement test in the present study consisted of nine questions that embraced various items of an objective test and essay test. These can be outlined as follows (see appendix 6):

Question 1 used multiple-choice items:

This type of question can be used in evaluating students' knowledge and some intellectual skills (Gronlund, 1968, p. 28). It contains a set of alternatives which represent a solution or answer to one situation or problem. Students are requested to choose the correct answer from five alternatives. This type is easier to score and analyse, and in spite of the difficulty in devising and formulating the items, it addresses the comprehensiveness of the statement (Tuckman, 1975, p. 92). Care was taken in formulating and phrasing each item in order to be clear and precise. Students were requested to put a circle round the correct answer.

Question 2 used true/ false items (correct/ wrong items in this study):

This type is simply a declarative statement which the student must judge as true or false (ibid, p. 45). It is simple for students to answer. The weakness of this type is that it gives a chance for student to guess (Tuckman, 1975, pp. 83-4). Indeed the researcher tried to overcome this weakness through some of the instructions at the beginning of the achievement test in which students were requested to limit their answers and not to guess. Students were asked to put a tick (✓) in front of the correct item and a cross (X) in front of the wrong item and correct it.

Question 3 used matching items:

In matching questions students are usually requested to distinguish and match words and ideas in column A with suitable ones in column B. This type helps the constructor of the achievement test to cover a great deal of the content and enables students to distinguish and discriminate. Writing the items for matching questions is time-consuming and difficult (ibid, p. 101). The researcher tried to formulate clear items and repeatedly asked students in the pilot study if they found any difficulty in



answering these items, besides that they should report any ambiguous item or word. In answering this section, students wrote the number in front of the item in column B which relates to column A.

Question 4 used completion items:

This question contained of 5 items, students were requested to fill the blank with a suitable word. Here the chance of students' guessing is reduced and it enables them to recall information, therefore this type is unsuitable to evaluate complex learning outcomes (Gronlund, 1985, p. 150).

Q 5, Q 6, Q 7, Q 8, Q 9 required students to answer in short and long essay tests which enabled them to use their language, own expressions, to help them to interpret, to apply their knowledge, analyse, synthesize and evaluate (Tuckman, 1975, p. 111). The shortcomings of the essay question are that it is difficult and subjective in scoring and students' scores are apt to be influenced by writing and bluffing (Gronlund, 1968, p.68). Table 3.5 shows the distribution of the questions according to Bloom's taxonomy as follows:

Table 3.5 the Specifications of Achievement Items

Number of questions	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation	Total
1	11 items	4 items					15
2	1 item	3 items	2 items				6
3	3 items	2 items					5
4	2 items	2 items	1 item				5
5	1 item	2 items		1 item	1 item	1 item	6
6	1 item	2 items				2 items	5
7		1 item		1 item	1 item	1 items	4
8		1 item			1 item	1 items	3
9	1 item	1 item	1 item	1 item	1 item	1 items	6
Total	20 items	18 items	4 items	3 items	4 items	6 items	55



To make this test more valid and reliable the researcher addressed the content validity and construct validity of the achievement test (AT) by making sure that the objectives of the AT matched the titles of the history content in the first year of secondary school. Concurrent validity was also demonstrated by matching the test with aspects of the students' attitude questionnaire, the Modified Watson-Glaser Critical Thinking Appraisal and the teaching programme to be sure to include all the elements in all the instruments. For example, some of the learning styles included in the SAQ were 'students infer from given information', 'students distinguish between strong and weak arguments' and some of the sections in the MWGCTA included inference and evaluation of arguments. The researcher gave the AT to a set of experts in the local College of Education, some of the Social Studies inspectors and teachers in Abha in Saudi Arabia (see appendix 3) to implement jury validity for this test. These experts made the following remarks:

- They commented that the test was well-structured and suitable for students in the target stage and suitable to the objectives of the test.
- They suggested simple alterations in translating some of the words in the Arabic language version in order to be clearer and more understandable to the students.
- In matching (question one) it was suggested that it may better to put double items in column B to select or match two sentences from column B for each item in column A. So the researcher implemented this suggestion as written in section three.

The reliability of the achievement test AT was calculated using the split-half method administered once, dividing the test into two parts, one half comprising the odd numbered questions (Q1 items 1,3,5,7,9,11,13,15, Q3, Q5, Q7, Q9), the other comprising the even numbered questions (Q1 items 2,4,6,8,10,12,14, Q2, Q4, Q6, Q8). The researcher selected this method not only because it was valid but it saved time in a situation where time was very short due to the imminent end of the school

year and the commencement of the examination period at that time. The researcher undertook the pilot study of the AT at Khamis Mushait secondary school in Saudi Arabia on the same group which tested the SAQ, and calculated Cronbach's Alpha (the coefficient of reliability). The coefficient reliability of the achievement test was high (see table 3.6).

Table 3.6: the Alpha Reliability Coefficient for the Achievement Test.

Items	Alpha Reliability Coefficient	Standardised Item Alpha
2 (split-half test)	.7545	.7908

#### 4. 6. 3. 4 Item Discriminability and Item Difficulty:

The researcher addressed item discriminability and item difficulty for the achievement test questions as follows:

The formula for item discriminability was not used here because the questions of the achievement test were not dichotomous. Nevertheless Q1, Q2, Q6, Q7, Q8, Q9 seem to have good discriminability because they have a wide range of marks, whereas Q3, Q4, Q5 seem to have less discriminability because they do not have such a range of marks (see appendix 6).

In relation to item difficulty any item with a failure rate below 33% seems very easy and the item above 67% seems very difficult (Morrison, 1993, p. 104). To calculate item difficulty the researcher applied the following formula (Patterson, 1994, p. 202):

Total marks per questions for all pupils +  
Maximum possible marks per question X number of pupils = % Difficulty of question

Table 3.7 indicates that questions 1 and 2 seem very difficult because they have percentages respectively (.73%, .68%) above 67% and questions 3, 4, 5, 7, 8 seem reasonable and they have percentages between the maximum and minimum range respectively (.62%, .46%, .66%, .54%, .65%) whereas questions 6 and 9 seem



very easy because they have percentages below 33% respectively (.25%, .29%) as indicated previously.

**Table 3.7: The Item Difficulty of the Achievement Test**

Questions	Maximum Marks Per Question	Total Marks for All Pupils	Item Difficulty (Maximum 100%)
1	15	262	.73%
2	11	195	.68%
3	10	160	.62%
4	13	156	.46%
5	12	207	.66%
6	10	65	.25%
7	12	167	.54%
8	6	102	.65%
9	11	83	.29%

The final version of the AT was revised in respect of some vocabulary in the Arabic version to help the respondents understand the whole test more easily.

#### **4.7.1 The Teaching Programme for History**

Since this study would ascertain the effect of two teaching methods, the traditional and inquiry methods, and would apply and investigate the inquiry method, it was necessary to devise a programme of history which was fitted to this method because the prescribed textbook of history in the first year was built around the traditional method. In light of the requirements and the skills of the inquiry method and the content of history in the first year of the secondary school the researcher addressed the following curriculum objectives for the content of the teaching programme:



### *Objectives*

- Students should understand that the Prophet Mohammed disliked the worship of idols and the bad deeds of his people at that time.
- Students should be able to deduce some aspects of the Prophet Mohammed's life.
- Pupils should be able to analyse good manners in the life of the Prophet Mohammed.
- Students should know where the Prophet Mohammed spent much of his time.
- Pupils should be taught about the beginning of the Prophet Mohammed's life.
- Students should become aware of the importance of the message of the Prophet Mohammed.
- Students should be able to state the ways in which the Prophet Mohammed called people to Islam.
- Pupils should be able to extrapolate the lessons from the holy war (Jihad) of the Prophet Mohammed.
- Pupils should be able to indicate some religious places e.g. (Mecca, Madina, Badar, Hudybai).
- Pupils should be able to evaluate the ability of the Prophet Mohammed to choose the most suitable person to do his work precisely and for different tasks.
- Students should be able to discern the value of the Prophet Mohammed's patience.
- Students should be able to infer the development of the Prophet Mohammed's asceticism and contentment.
- Pupils should be able to deduce the greatest lessons of how the Prophet Mohammed worshipped and believed in his God (ALLAH).
- Students should apply the good qualities of the Prophet Mohammed in their lives, for example (being humble, helping needy people, justice, mercy, forgiveness, patience and good manners).
- Pupils should be able to find evidence of the ability of the Prophet Mohammed's eloquence and rhetoric.
- Students should know how to follow the prophet's manners in their lives.

#### **4. 7. 2 The Content of the Teaching Programme**

The content of the programme designed to meet the curriculum objectives comprised fourteen lessons with different areas of study as follows (see appendix 7):

1. The life of the Prophet Mohammed before his prophecy (2 sessions).
2. His keeping away from idols.
3. The revelation.
4. The message of the Prophet Mohammed and his people.
5. The calling to Islam.
6. His persistence in conveying his message.
7. The leadership of the Prophet Mohammed.
8. The wisdom of the Prophet Mohammed
9. The private life of the Prophet Mohammed (asceticism).
10. The humility of the Prophet Mohammed
11. The Prophet Mohammed's justice, mercy and forgiveness.
12. The Prophet Mohammed's morality and patience.
13. The eloquence and rhetoric of the Prophet Mohammed.

#### **4. 7. 3 Setting up the Teaching Programme**

The researcher prepared the teaching programme in accordance with the inquiry method, and then prepared the Arabic version of it. Table 3.8 sets out a matrix of elements of the inquiry method included in the teaching programme as follows, with the symbols (e.g. 1a, 1b, 1c) explained below. The criteria for progression are in terms of precision, amount of teacher assistance, speed of working, range of contexts, quantity and order of skills (Morrison and Ridley, 1988, pp. 121-2).



**Table 3.8: A Matrix Plan of the Elements of the Inquiry Method Addressed in the Teaching Programme and their Order of Difficulty**

Elements of the inquiry method	Easy	Moderately Difficult	Difficult
1- Recognition of the problem	1a. Pupils will be able to recognize only one simple problem with much teacher assistance. Imprecise recognition. Working slowly and in a very limited range of contexts.	1b. Pupils will be able to define the problem with moderate accuracy, with limited teacher assistance, fairly precise recognition and with moderate speed, application to a few contexts.	1c. Pupils will be able to recognize and understand complex problems at an abstract level, with no teacher assistance, working precisely, clearly, fast and in a wide range of contexts.
2- Hypothesizing	2a. Pupils will be able to generate only one simple and obvious hypothesis with much teacher assistance, imprecisely defined, working slowly and in a very limited range of contexts.	2b. Pupils will be able to formulate more than one hypothesis of some complexity with some teacher assistance, fairly precisely, fast and in a moderate range of contexts.	2c. Pupils will be able to recognize and understand complex and abstract hypotheses, with no teacher assistance, working precisely, fast and in a wide range of contexts.
3- Posing questions	3a. Pupils will be able to ask simple questions imprecisely and hesitantly in a limited range of contexts with much teacher assistance.	3b. Pupils will be able to ask a moderate range of questions with some teacher assistance, fairly precisely and fairly fast in an increasing number of contexts.	3c. Pupils will be able to pose complex questions without teacher assistance, precisely, fast and in a wide range of contexts.
4- Accessing sources	4a. Pupils will be able to access simple sources such as maps, transparencies, in a limited and simple way with much teacher assistance, slowly and with imprecise notions of how to access sources, working in very few contexts.	4b. Pupils will be able to interpret the material which exists in several sources with some teacher assistance, precisely and slowly in a limited range of contexts.	4c. Pupils will be able to apply a wide range of information from many sources without teacher assistance, working precisely, clearly, fast and in a wide range of contexts.
5- Testing hypotheses	5a. Pupils will be able to test one simple hypothesis from a limited range of information, with much teacher assistance, working imprecisely and very slowly in very few contexts.	5b. Pupils will be able to investigate a moderate range of hypotheses, with some teacher assistance, working fairly precisely and speedily in an increasing number of contexts.	5c. Pupils will be able to test a wide range of hypotheses without teacher assistance, precisely, fast and in a wide range of clearly defined contexts.
6- Data collection	6a. Pupils will be able to know where they can get simple knowledge and information from one reference with much teacher assistance, working slowly with imprecise definition of relevant information.	6b. Pupils will be able to access different sources of information with little teacher assistance, working fairly precisely and with a moderate definition of relevant information in several contexts.	6c. Pupils will be able to access all types of relevant data using different techniques without teacher assistance, working precisely, clearly, fast and in a wide range of contexts.
7- Analysis of elements, relationships, principles	7a. Pupils will be able to analyse and synthesise a limited range of information with much teacher assistance, working imprecisely and hesitantly in very few contexts.	7b. Pupils will be able to analyse a moderate range of relationships between a few factors with some teacher assistance, working fairly precisely and fast in an increasing range of contexts.	7c. Pupils will be able to analyse a wide range of complex relationships with no teacher assistance, working precisely and very fast in a wide range of contexts.



8- Interpretation	8a Pupils will be able to understand and comprehend what and how something has happened, with much teacher assistance, with imprecise interpretation, working with very limited range of data and in limited contexts, and working very slowly.	8b Pupils will be able to express how and why something happened, by themselves, correctly, precisely, and demonstrating interpretation of a greater range of data, working at moderate speed.	8c Pupils will be able to justify correctly why something happened, without teacher assistance, working with high precision, using a wide range of clearly identified data sources.
9- Inference	9a Pupils will be able to infer only one simple idea from the given information with teacher assistance, working imprecisely and slowly and in a very limited range of contexts.	9b Pupils will be able to infer some information in a limited range with limited teacher assistance, working fairly precisely and fairly fast in a few contexts.	9c Pupils will be able to infer complex relationships from the given information without teacher assistance, working very precisely and fast, in a variety of contexts.
10- Making sure of the evidence	10a Pupils will have imprecise notions of appropriate evidence. They will be able to define appropriate evidence in a simple and concrete way, working slowly with a limited range of information, given much teacher assistance.	10b Pupils will be able to look for the evidence in a moderate range of information with some teacher assistance, working fairly precisely and slowly with some judgement of appropriate evidence.	10c Pupils will be able to find a range of appropriate evidence in a wide range of information without teacher assistance, working precisely, fast and with clearly defined notions of appropriate information in a wide range of contexts.
11- Making generalizations	11a Pupils will be able to make a simple generalization from a limited range of information with much teacher assistance, working slowly and imprecisely in a very limited range of contexts.	11b Pupils will be able to make more than one generalization from a wide range of information with some teacher assistance, working precisely and moderately fast, in an increasing number of contexts.	11c Pupils will be able to make a broad and abstract generalization without teacher assistance, being highly accurate and working very fast in a wide range of contexts.
12- Evaluation of Results	12a Pupils will be able to evaluate one simple result with much teacher assistance from a limited range of information, imprecisely and slowly in very few contexts.	12b Pupils will be able to evaluate a moderate range of results with some teacher assistance, working precisely and fairly fast in an increasing number of contexts.	12c Pupils will be able to evaluate a wide range of results without teacher assistance, working precisely, clearly and very fast in very many contexts.
13- Applying knowledge and information	13a Pupils will be able to apply one simple factor or generalization to very few other situations with much teacher assistance, working imprecisely and hesitantly.	13b Pupils will be able to apply a moderate range of information and knowledge with some teacher assistance, working fairly precisely and fairly fast in an increasing range of contexts.	13c Pupils will be able to apply complex information and knowledge in wide range of contexts without teacher assistance, working precisely and fast.

Key: The previous symbols can be explained as follows:

For example, the number (1) means an element of the inquiry method whilst the symbol (a) signifies the easy level or element of the progression, the symbol (b) indicates the second level of the progression which is moderately difficult and the symbol (c) states the last or third level of the progression which is difficult and so on and so forth.

Table 3.9 indicates how each of the sixteen lessons (column 1) of the teaching programme addressed the area of the history curriculum (column 2), the elements of the inquiry method from table 3.8 (1-13) (column 3), and the order - the degree of difficulty - of each element (a, b, c) (column 3), again referring to table 3.8.

Table 3.9: The Objectives which related to Each Lesson.

Lesson Number	Title of the Lessons	Elements and Order of the Inquiry Method
1	Prophet Mohammed before his Prophecy.	1b, 2b, 2c, 5b, 3c, 8b, 7b, 6b, 10b, 10c, 11c.
2	Prophet Mohammed before his Prophecy.	1b, 2a, 9a, 6b, 4a, 8a, 10a, 3a, 7a, 13a, 10c, 11a.
3	His keeping far away from Idols.	1b, 2b, 9c, 2c, 4b, 5b, 7b, 5c, 10b, 4a, 11a, 8a, 10c, 11b.
4	The revelation.	2c, 4c, 8c, 3c, 12a, 9b, 8b, 11b.
5	The message of Prophet Mohammed and his people.	1c, 2c, 6b, 4b, 9b, 10b, 11b, 8b, 8c, 10c, 4c.
6	The calling to Islam.	1b, 2c, 8b, 5b, 8c, 6b, 4b, 10c, 13a, 9b, 11b.
7	His persistence in conveying his message.	1b, 2b, 2c, 5b, 9b, 4b, 6b, 10c, 3c, 8b, 11b.
8	The leadership of Prophet Mohammed.	1c, 2c, 4b, 6b, 10b, 5c, 9b, 8c, 7a, 10c, 7b, 11b, 13a.
9	The wisdom of the Prophet Mohammed.	1c, 2b, 6b, 5b, 4b, 9b, 10b, 10c, 12a, 7a, 11c, 13c.
10	The private life of Prophet Mohammed (asceticism).	1b, 2a, 3a, 6b, 5b, 9a, 10c, 4a, 11b, 13b.
11	The humility of the Prophet Mohammed.	1b, 2c, 6b, 5b, 10b, 4b, 9b, 8b, 12a, 3b, 11b.
12	Prophet Mohammed and his justice, mercy and forgiveness.	1b, 2c, 5b, 10b, 9b, 4b, 8c, 9c, 12b, 13b.
13	Prophet Mohammed's morality and patience.	1b, 2b, 5b, 6b, 4b, 10b, 8a, 13a, 9b, 11b.
14	The eloquence and rhetoric of Prophet Mohammed.	1b, 2b, 6b, 5b, 10b, 9b, 4b, 11c, 13b.
15	The advent of Islam.	1b, 2b, 6c, 4c, 5b, 8b, 9b, 10b, 8c, 10c, 11b, 12a, 13b.
16	The Islamic conquest.	2b, 6c, 4c, 5b, 8b, 9b, 10b, 11b, 12a, 13b.

The coverage of the thirteen items in the overall teaching programme of sixteen lessons of table 3.9 can be seen in table 3.10 as follows:



**Table 3.10: The Coverage of the Thirteen Items Overall Teaching Programme**

1a (0)	1b (11)	1c (3)
2a (2)	2b (9)	2c (8)
3a (2)	3b (1)	3c (3)
4a (3)	4b (10)	4c (4)
5a (0)	5b (12)	5c (2)
6a (0)	6b (11)	6c (2)
7a (3)	7b (3)	7c (0)
8a (3)	8b (8)	8c (6)
9a (2)	9b (12)	9c (2)
10a (1)	10b (11)	10c (9)
11a (2)	11b (11)	11c (3)
12a (5)	12b (1)	12c (0)
13a (3)	13b (5)	13c (1)

The numbers in brackets refer to the frequency of their incidence in table 3.10.

The researcher tried to implement a distribution of the above items throughout the lessons in order to achieve a complete differentiation of them in the teaching programme. Nevertheless the researcher also depended on the nature and the quantity of the information for each lesson in the distribution of the preceding items whether to include some of them in some lessons or to leave them out of other lessons.

The programme was validated by addressing content and jury validity, offering it to experts in the field in the College of Education in Abha in Saudi Arabia and to some Social Studies inspectors and teachers in the Abha Directorate of Education. The 'jury' indicated that the programme was well constructed and they suggested some corrections to the Arabic text to make it clearer for the teacher. They indicated that the programme would be beneficial if taught carefully, in other words if the teacher co-operated willingly in teaching it. In order to increase the programme's



reliability it was piloted with five students, by requesting them to read it so as to clarify the difficulty and clarity of the content. Amendments to the vocabulary of the teaching programme were also made in the Arabic version. In order to make the teaching programme clearer for the teachers who were to teach it and in order to provide feedback data for the teacher, the researcher set up some observation sheets (checklists) (see appendix 8) to record what was taking place inside the class and what happened during the teaching period, and to provide teaching support guidance for how to proceed. The observation sheets comprised several items about the learning styles, using the resources and the extent to which students achieved the assignments which had been given to them, with the teacher putting a tick in front of each item as appropriate. Four observation sheets were included to cover the following points (see appendix 8):

1. The quantity of student's performance.
2. The quality of student's performance.
3. Student's motivation.
4. Student's enjoyment of the lesson.

The researcher met the teacher after each lesson to discuss with him any obstacles or problems during the teaching process. The instruments were printed in Arabic, ready for the fieldwork.

#### **4. 7. 4 The Control Group**

The control group consisted of two classes which had been taught by the same teacher using the traditional method. They had studied the same history curriculum. it was recommended that the history teacher be free to make his lesson plan in his usual way. However, the researcher discussed with him the procedures of preparing all the lessons. In addition, the researcher carefully observed and guided the teacher during his teaching in the control groups. The lesson plan was introduced according to the traditional method as follows: objectives, introduction, presentation, application, recapitulation and assignments (see appendix 19 for some examples of lesson plans

for the control groups). The two control groups were tested using all the instruments which were applied to the experimental group at the time of the pre-, post-, and postponed tests.

#### **4. 8. 1 The Population and Sample**

It is important to define the target population clearly and precisely to ensure an appropriate and representative sample. Anderson (1990) pointed out:

The first challenge in this type of research is to define the universe or group of interest. This is called the target population and it is essential that it be clearly defined and its boundaries understood. The interest in sampling is to generalize to this target population and one cannot pick a suitable sample unless the target population is fully described (p.196).

A population is defined as all members of any well-defined set of people, events, or objects (Ary et al, 1990, p. 169). The target population of this study consisted of all the students from the first year of secondary school in the Kingdom of Saudi Arabia. Owing to the difficulty of studying the whole target population and the time available the researcher selected the Educational Directorate in Abha; this contains schools in all stages in several areas (Abha, Khamis Mushait, Ahad Rufeida and Ballasmar) comprising 296 elementary, intermediate and secondary stages (Abha Directorate, 1991, p. 12). The number of students in the first year of secondary school in the Abha Directorate was 3176, the number of secondary schools in Abha was 36. The researcher chose Abha for reasons of convenience, residing there and knowing most of the headteachers and teachers in the schools here, facilitating co-operation with them. Within the Abha Directorate the researcher selected a representative sample of the target population in this area. Here stratified and random sampling were chosen to enable generalizability of results. The education system in Saudi Arabia has a controlled organization of education over all the country, students in the first year of secondary school study the same curriculum, and the organization of schools, timetable and subjects are the same; hence focusing on a random sample of students in the survey, school of the experiment, and classes for the experimental and control



groups within one directorate would enable the researcher to generalize the results of the present study to Saudi Arabia generally.

#### **4. 8. 2 The Sample**

It is difficult to study the entire target population owing to the time, efforts and costs. It is necessary, therefore, for any researcher to limit the study to a representative sample. A carefully chosen sample enables the researcher to make observations on this smaller group, and then generalise the finding to the larger population (Ary et al, 1990, p. 169). Here the sample should be representative of the whole population of the first year of secondary school, it should have an adequate number or size to enable the researcher to make comparisons between groups and it should be conveniently located (Bynner et al, 1979, p. 38). Regarding the size of the sample in educational research it is recommended that the size should include at least 30 individuals, to enable the researcher to carry out statistical analysis. However, it is necessary to use a larger sample if the population is heterogeneous (Ary et al, 1990, p. 179). A sample, if less than 30 cases, will risk chances of bias (Charles, 1988, pp. 151-2).

There are two main types of sampling. Probability sampling means that every member of the target population has a known probability of being included in the sample, and the selection of the members or elements might be chosen by chance (Cohen and Manion, 1985, p.98, Ary et al, 1990, p.171). The second type of sampling is non-probability sampling, where the probability of selection is unknown (Cohen and Manion, 1985, p. 98). Ary and et al (1990) have said of non-probability sampling:

There is no way of estimating the probability that each element has of being included in the sample. Its success depends on the knowledge, expertise, and judgement of the researcher. Non-probability sampling is used when the application of probability sampling is not feasible. Its advantages are convenience and economy (p.171).

It is suggested that the researcher should design and plan his sample in ways that make data collection most convenient (Anderson, 1990, p. 198). Within the two main types of sampling (probability and non-probability) there are several sub-types of sampling.



### *The simple random sample:*

The most common and the simplest type of the probability sample is the simple random sample where every member of the population has an equal chance of being selected and appearing in the sample (Cohen and Manion, 1985, p.98, Nisbet and Entwistle, 1970, p. 26, Bynner et al, 1979, p.15, Wiersma, 1980, p. 187). To choose the members for this type of sample names can be drawn from a hat or from a table of random numbers (Nisbet and Entwistle, 1970, p. 26). The simple random sample enables the researcher to generalize the results of the study to the whole population (Turney and Robb, 1971, p. 108). In addition it achieves the representativeness of population the researcher avoids bias in selection of the sample. The random selection enables the researcher to be sure that any differences between the sample and the population are a function of chance alone and not a result of the researcher's bias (Ary et al, 1990, p. 173). The simple random sample has the difficulty of requiring a large sample, which has been deemed time-consuming. The simple random sample was chosen because of its genuine representativeness and ability to enable the researcher to generalize the results of the study. The researcher tried here to obtain and devise a sample from the large population by using a small box and withdrawal until the demand size was reached, discussed later.

### *The stratified random sample:*

This type of sampling is used in circumstances when the target population contains various groups or classes; the researcher must divide the population into two or more subpopulations, called stratified random sampling, and then select members from each strata (Wiersma, 1980, p.194). It gives accurate results provided that the population is divided accurately into subpopulations and the substrata are known (Mouly 1978, p. 147). In fact this kind of sampling enables the researcher to ascertain the differences between these substrata, the major advantage of stratified sampling is that it guarantees representation of defined groups in the population (Ary et al, 1990, p. 174). This kind of sampling needs to identify and represent the strata. The researcher selected this type in limiting students' to those in the first year of secondary

school and in the selecting Abha region that locates in the south west of Saudi Arabia (see appendix 18 for a map of Saudi Arabia). Following that the researcher chose a simple random sample of individuals for the experiment.

*The systematic sample:*

Systematic sampling is used when the population is large. To select the members of the population here the researcher should put their names in alphabetical order on a list and a sampling fraction calculated. This is then used to select systematically from the list, e.g. every tenth person (Wiersma, 1980, p. 204). It is easy and quick to choose the systematic sample, and it is useful when a frame of the population does not exist at the time of the selection (Bynner et al, 1979, p. 18).

*The Cluster Sample:*

The cluster sample can be used when the population is placed in groups or units, so-called clusters. This type is helpful and useful when the population is grouped in units that can be conveniently used as clusters (Wiersma, 1980, pp. 197-8).

Cluster sampling differs from stratified sampling in that the random selection does not occur with the individual members, but with clusters. The clusters for the sample are randomly selected from the large population of clusters, and once a cluster is selected for the sample, all the population members in that cluster are included in the sample (Wiersma, 1980, p.198).

The attraction of this kind is that it permits the easy accumulation of large samples for achieving the generalizibility (Mouly, 1978, p. 149).

*The Quota Sample:*

Non-probability sampling includes quota sampling which is often used in opinion polls or market research. Nisbet and Entwistle (1970) have described quota sampling thus:

When each interviewer is given a quota to be filled say, ten interviews with a predetermined proportion in a certain age-range or with men and women from certain socio-economic groups, the total group of individuals interviewed should be a model of the adult population in distribution of age, sex and social class (p. 29).



### *The Purposive Sample:*

In this type of sampling the members are chosen from the population to be typical or representative of a sector of the population. The purposive sampling is useful to study attitude and opinion surveys in specified, non-representative, areas of the population (Ary et al, 1990, p. 177). This type of sampling has not been used because it is not suitable for this study and does not enable the researcher to generalize the results to the whole population.

The target population comprised all the first year students (3176) of the secondary schools at the Educational Directorate in Abha. Owing to the difficulty of researching all this number it was necessary to select representative sampling to provide an opportunity to generalise the result to the whole population.

The size of the sample, according to Krijcie and Morgan (1970, p. 163) (see appendix 9), was to be 351 students. The researcher selected the random sample of this size in order to achieve a greater representativeness between the sample and the target population. There were no major differences between students in terms of their background and socio-economic status, hence stratification was unnecessary at this stage. The researcher followed a sequence of steps in arriving at the random sample. Firstly the researcher listed the names of the 32 secondary schools (after withdrawing four secondary schools because some of them were related to special education and others did not teach some subjects such as science).

The name of each school was written on a piece of paper then put into a small box, shaken, selected and returned to the box (Morrison, 1993, p. 121) until the sample size was reached, as recorded in table 3.11 below:



Table 3.11: The Names of the Schools  
the Number of the Students and the Number of Sampling from Each School.

School Number	The name of schools	The total number of students	The sample number of students
1	Abha Secondary	135	12
2	Al-Fatah Secondary	140	11
3	Hunain	69	16
4	Al-Fahad	245	11
5	Al-Khamis	196	8
6	Al-Abna	135	11
7	Al-Seddig	182	16
8	Al-Faisal	242	8
9	Tandah	75	13
10	Koud	44	8
11	Sultan	69	8
12	Al-Foaz	89	16
13	Tabab	36	8
14	Ljwan	51	11
15	Al-Farein	57	15
16	Al-Wadeen	90	8
17	Sabah	47	10
18	Eibl	24	12
19	Al-Maween	70	17
20	Ballasmar	122	18
21	Al-Shalfa	42	13
22	Safwan	115	10
23	BahtRabeah	53	15
24	BanoJabrah	80	11
25	Al-Sarhan	66	6
26	Wadi bin Hashbal	70	12
27	Yaara	33	6
28	Model secondary	45	13
29	Al-baihaki	95	7
30	Alheemah	28	5
31	Al-Aban2	145	9
32	King Khalid	264	11
Total		3176	351

Genuine randomness was thus ensured. The selection of the school where the experiment was to take place was undertaken randomly from a set of papers, with each school represented separately and chosen impartially. The school to be used turned out to be King Khalid secondary school in Khamis Mushait. In order to select

the two classes to be included as the experimental and control groups for teaching the programme the researcher wrote the number of the secondary first year classes on a piece of paper each and chose 3 classes (b, h, z). Then, to select which of these were to be the experimental and control groups, the researcher wrote the word 'experiment' on one piece of paper and the word 'control' on the other two and drew the words from the box. It turned out that class b was the experimental group and the others (classes h, z) were the control groups. King Khalid secondary school is one of the secondary schools in Saudi Arabia which is supervised by the Ministry of Education. Students in the first year are around 15 years old, studying the same curriculum and spending the same time on the subject in school. This process achieved the representativeness of the experimental and control groups in comparison to the whole population and thus allowed generalizability.

#### **4.9 Ethical Issues in Conducting Research**

There has been increased concern for ethical matters in research since the 1970s (Dockrell, 1987, p. 165). A large number of ethical principles may concern the researcher when carrying out a study in the survey method where the researcher conducts questionnaires or interviews and in the experimental approach. In survey research the researcher is an outsider and may be a stranger to the respondents. In this case the researcher might risk asking people some intrusive and personal questions. In return the respondents may wish to hide some important information or they may withhold information because they feel hesitant to say everything to a stranger and may be do not wish to disclose to anybody who comes in from another organisation or society anything about themselves and their feelings and meanings that are considered as a part of the individuals 'natural attitude' to their world (Douglas, 1976, p. 85). Moreover the respondents may be unaware of everyday features, if a researcher tries to discuss something of their meanings and feelings with them they may therefore seem ignorant of the most obvious, natural background feelings and meanings of



everyday life (ibid, p. 86). In this study the researcher as an outsider could seem to be a powerful, coercive figure, particularly as he had been carrying a letter from the Ministry of Education to encourage the respondents to co-operate willingly and give the researcher whatever he wanted whether in the experimental or survey methods. The researcher also gave the students the opportunity to participate or withdraw from answering the instruments. One of the advantages of being an outsider researcher is that he does not know the people, in other words he can achieve objectivity in the research. The researcher as an insider may tend to be subjective and prejudiced in his views because he plays an essential part in the study, therefore, he might focus himself on the points which serve the results of the study, thereby losing a neutral viewpoint. Woods (1986) considered teachers as insider researchers:

Teachers have access to their own classroom and a view of their own self. They participate in decision-making and policy-making processes and they may be on intimate terms with some of their own colleagues and pupils, but there may be other places and situations they need to go, and other people they need to develop rapport with. In addition, they will, perhaps, wish to reflect upon where they are in their various relationships in terms of the stages of access outlined above (p. 24).

In experimental research the researcher might encounter another dilemma, students might wonder why one teaching method is being used with one class and not with another, i.e. that there is a measure of unfairness in the proceedings. Moreover, students' parents could be reluctant or might have an objection to let their children receive anything that they think will waste their children's time or affect their examination results, so in this case the researcher might get resistance, animosity and may get screams of denunciation or worse (Douglas, 1976, pp. 83-4). The researcher circumvented these issues through an agreement with the school's headteacher who said that students were used to dealing with such studies, and that their parents were usually informed. Burgess (1980) has indicated some problems which the researcher and respondents might need to address in undertaking research (p.171):

What obligations does the investigator have to those individuals that he studies?  
Should individuals be identified or be identifiable in the research report?  
What can be done to avoid harm to individuals under study?  
Who owns the data and who should have access to those data?



The researcher addressed all these issues and questions in the following discussion.

Researchers therefore should make sure that all the respondents feel willing to participate in the research. The researcher should obtain clearance from the place where his study will take place. Bell (1987) has recommended that the researcher should seek permission for access to the schools or institutions and any other organisation, saying that:

Permission to carry out an investigation must always be sought at an early stage. As soon as you have an agreed project outline and have read enough to convince yourself that the topic is feasible, it is advisable to make a formal, written approach to the individuals and organizations concerned, outlining your plans. Be honest. If you are carrying out an investigation in connection with a diploma or degree course, say that is what you are doing. If you feel the study will probably yield useful and/or interesting information, make a particular point of that fact but be careful not to claim more than the investigation merits (p. 42).

Furthermore, to obtain clearance or permission from schools or other communities the researcher may write a letter to them explaining the purposes of the study and what kinds of information are sought, and when the research will take place. The researcher may seek written confirmation of permission to undertake the research (Brinkerhoff et al, 1986, p. 87). It may be advisable for the researcher to indicate to participants that confidentiality and anonymity will be respected, so that there are no identifying marks - names, address, occupational details or coding symbols will make them recognisable (Cohen and Manion, 1994, p. 366). It should not usually be necessary for the researcher to record the names of respondents, it seems desirable not to ask for the respondent's signature (Engelhart, 1975, p. 98). It may be desirable to guarantee that all data will be kept confidential in order to elicit honest information from the members and to encourage them to participate in replying to questionnaires and interviews. Additionally the researcher should agree with respondents what will be disclosed about them (Dockrell, 1987, p. 166). This requires researchers to be frank and open with the individual. Cohen and Manion (1994) describe the danger of breaking confidences as follows (p. 368):

Betrayal is usually applied to those occasions where data disclosed in confidence are revealed publicly in such a way as to cause embarrassment, anxiety, or perhaps suffering to the subject or participant disclosing the information. It is a breach of trust, in contrast to confidentiality, and is often a consequence of selfish motives of either a personal or professional nature.

The researcher has an important responsibility to let the whole community or society become acquainted with some implications of his research, otherwise they may be neglected or misinterpreted and the community as a whole may suffer (Dockrell, 1987, p. 168). The researcher, therefore, should explain the significance and the contributions of the study to the society and try to let them become acquainted with the findings of his study in the future. Moreover it is preferable to avoid asking the respondents questions that might involve risky or embarrassing answers to the questionnaire such as asking them to describe their classmates or state who their favourite teacher is. Slavin (1984) indicated that if there is a chance that the research may causes serious physical, emotional, or educational harm to even a single student, it should not be pursued (p.140).

In asking about the private life of people researchers should make clear their intentions and should ensure 'informed consent' from the respondents, besides taking care of anonymity and confidentiality (Cohen and Manion, 1994, p. 366). There might be occasions when researchers want to gather information that may be deleterious to individuals. In these circumstances they must try to tackle the research in an accountable and honest way by not mentioning names or identifiers, to respect anonymity, for if not, harm may be done to the individual and his rights, as well as harming future data collection efforts (Brinkerhoff et al, 1986, p. 115). The researcher addressed these issues by informing the students that their answers would be confidential and anonymous and nobody would deal with them except himself. Frankfort-Nachmisa and Nachmias (1992) have suggested several procedures in gathering data that might cause a problem for the respondents, they list these as follows (p. 368):

- deletion of identifiers (for example, deleting names, addresses, or other means of identification from the data released on individuals).



- crude report categories (for example, releasing the year of birth rather than the specific date, stating a profession but not the speciality within that profession, general information rather than specific).
- micro aggregation (that is, the construction of 'average persons' from data on individuals and the release of these data, rather than data on individuals).
- error inoculation (deliberately introducing errors into individual records while leaving the aggregate data unchanged).

In contrast to this is the insider researcher who, being one of the members or staff in schools, may see his role as simple and easy because he knows all the individuals, teachers, students and many details about the situation which he intend to study, as mentioned previously. Bell (1987) has pointed out that (pp. 44-5):

The insider researcher had an intimate knowledge of the context of the research and of micropolitics of the institution. He knew how best to approach individuals and appreciated some of their difficulties. He found that colleagues welcomed the opportunity to air problems and to have their situation analysed by someone who understood the practical day-to-day realities of their task. as an insider, he quickly came to realize that you have to live with your mistakes after completing the research.

From the preceding argument it seems that researchers should pay close attention to ethical issues whilst gathering adequate, truthful and real information from their respondents. On the whole we must protect the individual's privacy and respect his feelings and rights. The researcher addressed all these points in the present study as follows:

- Permission had been obtained from the Ministry of Education to exhort headteachers, teachers, and students to participate and cooperate with the researcher actively and seriously (see appendix 10).
- Permission had been obtained also from the Directorate of Education in Abha to request headteachers, teachers and students to cooperate with the researcher (see appendix 11).
- Permission had been obtained from the Directorate of Education in Abha to ask the King Khalid secondary school to cooperate in helping the researcher to apply his study.



- A letter from the Abha Directorate of Education to the teacher of social studies at King Khalid secondary school was sent, asking for cooperation with the researcher in conducting the two teaching methods.
- The researcher demonstrated the purposes, significance, and contributions of the study to the individuals in schools by explaining that for them.
- The researcher explained to all participants that all the information would be confidential and anonymous, with data being aggregated and no individuals identified.
- The treatment of all the data gathered would be undertaken by the researcher himself and nobody else would see it.
- The researcher promised the staff in the Ministry of Education that they would have the chance to be acquainted with the results of the study.

#### **4. 10 The Fieldwork**

The fieldwork was conducted in Saudi Arabia within the first semester of the school year 1993 and lasted five months. The sequence of the field work proceeded thus:

All the instruments were prepared and printed together with a covering letter and instructions.

Permission was granted by the Ministry of Education in Saudi Arabia to conduct this study in the secondary schools in the Abha Directorate of Education. Evans (1978) indicated that:

Permission to carry out research must always be obtained in advance of starting it, and nothing should ever be done without the knowledge and consent of the head and any other members of staff who may be affected. It is often necessary to get the permission of the chief education officer for the area also. Consultation with the head will decide how the application should be made, and for a member of the staff of a school this is not likely to present much difficulty (pp. 13-4).

The researcher contacted the Ministry of Education, explaining the purposes of the study and the entire procedure to be followed in schools. After securing the

agreement of the Ministry of Education the study was ready to be applied in schools from the commencement of the first term (see appendix 10). The researcher received a letter of recommendation to schools from the Abha Directorate of Education to exhort them to cooperate in the research as much as they could (see appendix 11).

Before carrying out the experiment in the King Khalid secondary school it was necessary to meet the teacher who would be teaching the programme of history in order to explain everything to him. The researcher spent three sessions with him discussing the nature of the teaching programme, the procedures to be used in the inquiry method and an explanation of the data collection instruments. The teacher was very kind, helpful and enthusiastic about participating in the teaching programme, a very positive feature for the research.

To accompany the programme the researcher provided a set of resources that were not available in the school, such as overhead projection slides, books, references, handouts, pictures, maps and transparencies.

Clearance with students was undertaken by explaining to them the purposes of the research, its importance and to assure them that all the individual data would be manipulated in confidential and anonymous ways, as alluded to earlier. The researcher gave each student the opportunity to participate in the experiment or withdraw from it, either at the start or part-way through the research.

Before beginning the programme of teaching the pre-test in SAQ, MWGCTA and AT was conducted on 25, 26, 27, 28, 29 September 1993 with the experimental and control groups.

The teaching programme started on 2 October 1993 and continued until 12 December 1993.

The teacher kept a report on observation sheets (discussed previously) on each lesson for the researcher and after each lesson they discussed what had occurred in the lesson and the way forward. For example, the teacher raised the concern that though students sometimes enjoyed the programme they were frequently concerned about their success in the examination at the end of the term because they dealt with a lot of



books and references rather than the main history textbook. To ease this concern the researcher prepared question sheets which included various questions. For example, students were requested to explain the ways followed by the Prophet Mohammed to call people to Islam; who is the Prophet Mohammed; who says this sentence; mention the dialogue which took place between the Prophet Mohammed and his people; whether they would like to be as the Prophet Mohammed and why. The students were given these questions for homework to enable them to find the answers in their history textbook. The researcher also recommended to the teacher that he should remind his students, particularly in the experimental group, that they should continue to read their main history textbook.

After finishing the teaching programme the post-test was carried out directly on 15, 18, 19, 20, 21, 22 December 1993 in respect of the SAQ, MWGCTA and AT. The postponed test was applied during the period from 12 to 20 February 1994. There were two reasons for the delay: the programme finished at the end of the first term and the students had to be ready for the final exam of this term, and secondly the researcher wished to allow a period of time to elapse to look for longer term effects of the programme, yet not so long to let other variables contaminate the result. The matrix below (table 3.12) summarizes the sequence of the research and data collection.

Table 3.12: The Matrix Table for Gathering Data.

Sample	Pre-test (start)	Teaching Programme (2 months)	Post-test (3 months)	Postponed test (5 months)
Experimental group	SAQ, AT, MWGCTA.	T.P inquiry method	SAQ, AT, MWGCTA.	SAQ, AT, MWGCTA.
Control group	SAQ, AT, MWGCTA		SAQ, AT, MWGCTA.	SAQ, AT, MWGCTA.

After collection, the data were entered onto the computer for statistical analysis. That will be discussed in the next chapter.



## **Chapter V**

### **Data Analysis**

#### **5.1 Introduction**

The aim of this study was to investigate the effect of different teaching methods on the achievements in history class of the first year of secondary school students, their attitudes to history and developing critical thinking as mentioned formerly. To operationalise this investigation a number of sub-questions were raised:

1. What is the students' preferred learning style? Question 8 of the students' attitude questionnaire SAQ.
2. How often were these learning styles used in history lessons? Question 9 in the SAQ.
3. Which learning style most affects the students' enjoyment of history? Addressed in Question 12 of the SAQ in an item analysis of this questionnaire, as indicated in the previous chapter.
4. Which resources most affect the students' enjoyment of history? Question 13 in the SAQ.
5. What is the students' view of their teacher in history lessons? Question 14 in the SAQ.
6. How much does the content of the curriculum affect students' enjoyment of history? Question 15 in the SAQ.
7. To what extent do students enjoy history, geography and science? Question 24 in the SAQ.
8. What learning styles would the students be interested in trying out? Question 25 in the SAQ.
9. How often are different resources used in history teaching? Question 26 in SAQ.

10. How important do students believe history, geography and science to be? Question 29 of the SAQ.
11. Why is history important and how important are the reasons? Question 30 in the SAQ.
12. How easy do students find history, geography and science generally? Question 33 in the SAQ.
13. Are students intending to study history, geography and science in higher education? Question 34 of the SAQ.
14. How easy do students find history, geography and science to memorize and remember its materials? Question 35 in the SAQ.
15. How much of an expert do students feel their history teacher is in his knowledge of history? Question 36 in the SAQ.
16. How much do students like their history teacher? Question 37 of the SAQ.
17. Are there any differences between a control group and experimental group in a pre-test, a post-test and a postponed test in their attitudes towards history?
18. Are there any relationships between students' preferred learning styles and use of these styles in teaching history? Questions 8 and 9 of the SAQ.
19. Are there any relationships between students' preferred learning styles and their enjoyment of these styles? Questions 8, 12, 16 and 20 of the SAQ.
20. To what extent are students used to think critically in history?
21. Are there any differences in achievement of critical thinking between students in a control group and those in an experimental group in a pre-test, a post-test and a postponed test of critical thinking?
22. Are there any differences in achievements between students in a control group and those in an experimental group in a pre-test, a post-test and a postponed test of achievement in history ?

The following data is included but not discussed in detail: some data concerning students' preference and enjoyment of different learning styles, using them in geography and science, students' enjoyment of resources, students' view of their

teacher in geography and science, students' enjoyment of the content of geography and science and the reasons that make them important in school. The data is presented for reference in appendices. Correlational statistics on relationships between these questions and the questions that related to history are not included. They were calculated but were considered to be marginal to the main thesis.

## **5.2 Research Hypotheses**

In addressing the research issues the following hypotheses are proposed, cast in the form of null hypotheses:

1. There will be no significant differences between the control group and the experimental group in their preference of different learning styles at the pre-test, post-test and postponed and at each stage.
2. There will be no significant differences between the control group and the experimental group in the use of different learning styles at the pre-test, post-test and postponed and at each stage.
3. There will be no significant differences between the control group and the experimental group in their enjoyment of different learning styles at the pre-test, post-test and postponed and at each stage.
4. There will be no significant differences between the control group and the experimental group in their enjoyment of different resources at the pre-test, post-test and postponed and at each stage.
5. There will be no significant differences between the control group and the experimental group in their description of their history teacher at the pre-test, post-test and postponed and at each stage.
6. There will be no significant differences between the control group and the experimental group in their enjoyment of the history content at the pre-test, post-test and postponed and at each stage.



7. There will be no significant differences between the control group and the experimental group in their enjoyment of history, geography and science at the pre-test, post-test and postponed and at each stage.
8. There will be no significant differences between the control group and the experimental group in trying different learning styles at the pre-test, post-test and postponed and at each stage.
9. There will be no significant differences between the control group and the experimental group in the use of different resources at the pre-test, post-test and postponed and at each stage.
10. There will be no significant differences between the control group and the experimental group in the importance of history, geography and science at the pre-test, post-test and postponed and at each stage.
11. There will be no significant differences between the control group and the experimental group in the reasons for the importance of history at the pre-test, post-test and postponed and at each stage.
12. There will be no significant differences between the control group and the experimental group in the easiness of history, geography and science at the pre-test, post-test and postponed and at each stage.
13. There will be no significant differences between the control group and the experimental group in their intention to study history, geography and science at the pre-test, post-test and postponed and at each stage.
14. There will be no significant differences between the control group and the experimental group in the easiness of memorizing and remembering of history, geography and science at the pre-test, post-test and postponed and at each stage.
15. There will be no significant differences between the control group and the experimental group in their views of their history teacher's knowledge at the pre-test, post-test and postponed and at each stage.

16. There will be no significant differences between the control group and the experimental group in their liking of the history teacher at the pre-test, post-test and postponed and at each stage.
18. There will be no significant correlation between the control group and the experimental group in their preference of different learning styles and their use in history at the pre-test, post-test and postponed and at each stage.
19. There will be no significant correlation between the control group and the experimental group in their preference of different learning styles and enjoyment of them at the pre-test, post-test and postponed and at each stage.
20. There will be no significant difference between the control group and the experimental group in the results of the pre-test, post-test and postponed test in the test of critical thinking as a whole and at each stage.
21. There will be no significant difference between the control group and the experimental group in the results of the pre-test, post-test and postponed test of achievement in history as a whole and at each stage.

The research questions and research hypotheses are analysed using the data obtained from the survey and the experiment. The Statistical Package for Social Sciences was used to calculate the statistics.

Frequencies and percentages are used to give a description of students, in both whole survey questionnaire and experiment. The researcher used inferential statistics to explore the relationships and differences between groups within the dataset.

#### *Parametric and Nonparametric Tests*

There are various types of inferential statistics within parametric and nonparametric tests. Parametric tests can be used to make different assumptions about the characteristics of the population from which a sample has been selected (ibid, 1987, p. 145). This powerful type of test can be used with interval scale data (Siegel, 1956, p. 31). Nevertheless they have potential weaknesses: that they are sometimes unable to meet the assumptions on which they are based and that will lead the researcher into inaccurate or misleading results (Borg, 1987, p. 145). In distinction,



nonparametric tests make fewer assumptions about population data (Cohen and Holliday, 1979, p. 123). Cohen and Holliday (1979) pointed out the advantages of a nonparametric test as follows:

- it is easy and quick to apply.
- it is concerned with rank ordering rather than numerical data or observation,
- it can be used with nominal and ordinal data.

Nevertheless nonparameric tests do have disadvantages, Siegel (1956, p. 33): "if the researcher likes to achieve the strength of the data the nonparametric test is not suitable to use and it is wasteful of data".

Since this study included data from the survey method and experiment, using different kinds of instruments to answer the research questions, the data analysis is presented in the following order:

- a. The descriptive analysis of the SAQ and MWGCTA for the whole sample through the frequencies and the percentages and discussion of open-ended questions.
- b. The descriptive analysis of the students' attitude questionnaire (SAQ), the Modified Watson-Glazer Critical Thinking Appraisal (MWGCTA) and the achievement test (AT) for the experimental and control groups through the frequencies and the percentages.
- c. The combination of the two control groups;
- d. The SAQ for the control and experimental groups by using the nonparametric tests (Freidman and Mann Whitney U tests);
- e. The MWGCTA for the control and experimental groups;
- f. The AT for the experimental and control groups.

Analysis of the AT and MWGCTA is presented by applying mixed-design repeated measurement analysis of variance, appropriate to the interval data as mentioned earlier. This enables the researcher to investigate the differences between more than two statistical means at the time of the pre-test, post-test and postponed test to assess the global differences, following the t-test to ascertain the differences



between two means e.g. between the two groups at the time of the pre-test and the post-test to know the specific differences. The researcher considers that statistical significance will be where  $p. \leq 0.05, 0.01$ . The researcher will present the findings that related to history subject and the relationship that existed between different variables. Data relating to geography and science are not discussed in detail, but are included for reference in Appendix 15.

### 5.3 The Analysis of Data Collection from the Survey in the Students' Attitude Questionnaire

The students' attitude questionnaire (SAQ) and the Modified Watson-Glazer Critical Thinking Appraisal (MWGCTA) were given to the sample of 351 students (as discussed in the previous chapter) in order to support data from the control and experimental groups with regard to students' attitudes towards history in the first year of secondary school in Saudi Arabia.

#### 5.3.1 Type of School

Table 1 : Types of School: Frequencies and Percentages (%)

Schools in City	Schools in Village	Missing	Total
161 (46.0%)	189 (54.0%)	1	351

Table 1 shows the provenance of students in the whole sample: 54.0% came from schools in villages, whilst the rest of them came from schools in cities. All students of the experiment groups came from a city school. However, most of these schools, whether in villages or in cities enjoy similar facilities, similar curriculum, similar timetable and similar regulations, this hopefully enables the researcher to generalize the findings of this study to the whole population.

### 5.3.2 Students' Father's Job

Table 2: Students' Father's Job: Frequencies and Percentages (%)

Teacher	Employer	Military	Manual Worker	Business -man	Agriculture	Salesman	Doctor	Others
18 (5.1%)	87 (24.9%)	72 (20.6%)	9 (2.6%)	33 (9.4%)	38 (10.9%)	5 (1.4%)	0	88 (25.1%)

Table 2 shows that nearly 50.0% of students reported that their fathers worked as teachers, employers and in the military, i.e. in governmental sectors. 'Others' represented students' fathers who were, for example, dead or retired from their work. In contrast to the experimental and control groups it can be seen that they were similar in that about half percentage of students' fathers worked in the governmental sector as discussed later.

### 5.3.3 Students' Mother's Job

Table 3: Students' Mothers' Jobs:

Frequencies and Percentages (%)

Housewife	Teacher	Nurse	Others
337 (96.0%)	7 (2.0%)	1 (0.3%)	6 (1.7%)

Table 3 indicates that the majority of students' mothers' (96.0%) worked as housewives. These proportions were similar to the experimental and control groups, as mentioned later.

### 5. 3. 4 Students' Desired Specialisation in School

Table 4 : Students Desired Specialisation in School:  
Frequencies and Percentages (%)

Major	Frequency Yes	Frequency No
1 Islamic studies	124 (35.3%)	227 (64.7)
2 Educational studies	40 (11.4%)	311 (88.6)
3 Science studies	180 (51.3)	171 (48.7)
4 Arts studies	49 (14.0)	302 (86.0)
5 Human studies	33 (9.4)	318 (90.6)
6 Languages	32 (9.1)	319 (90.9)

Table 4 indicates that the most popular choice was science (51.3%). None of the whole sample chose two majors. Most students reported their unwillingness to be specialists in other subjects. This shows that students were still unaware about their future exactly, even though the researcher explained all of these subjects to them in more detail during the administration of the questionnaire.

### 5. 3. 5 Students' Grades in History

Students were asked to indicate their level or grades according to their success certificates. Table 5 displays students answers to the items on their grades in history, geography and science.

Table 5: Students' Grades in History, Geography and Science:  
Frequencies and Percentages (%)

Subject	Poor	Acceptable	Good	Very good	Excellent	Missing
History	1 (0.3%)	1 (0.3%)	42 (12.0%)	173 (49.3%)	134 (38.2%)	0
Geography	0	1 (0.3)	33 (9.4)	195 (55.6)	122 (34.8)	0
Science	0	5 (1.4)	74 (21.1)	172 (49.1)	99 (28.3)	1



Table 5 indicates that 87.5% of students in the whole sample rated themselves as 'very good' or 'excellent' in history. About 90% of them rated themselves as 'very good' or 'excellent' in geography. Further, around 77.4% of them rated themselves as 'very good' or 'excellent' in science. History and geography were more highly rated than science. This shows a generally strong positive rating which may influence their attitudes towards different subjects (such as history). In general, high success may often be linked to positive attitudes.

### 5. 3. 6 Studying History, Geography and Science at Home

Table 6: The Hours of Studying History, Geography and Science at Home: Frequencies and Percentages (%)

Items	1 hour	2 hours	3 hours	4 hours	5 hours	6 hours	7 hours	8 hours	Missing
History	299 (85.2%)	41 (11.7%)	6 (1.7%)	1 (0.3%)	3 (0.9%)	0	0	1 (0.3%)	0
Geography	293 (84.0)	47 (13.5)	5 (1.4)	3 (0.9)	1 (0.3)	0	0	0	2
Science	130 (37.2)	159 (45.6)	38 (10.9)	17 (4.9)	1 (0.3)	2 (0.6)	0	2 (0.6)	2

Table 6 indicates that the majority of students (85.2%) spent one hour per week in studying history at home and 84.0% of them spent the same in studying geography while 45.6% of them spent two hours in studying science. This agreed with the experimental and control groups, as mentioned later.

### 5. 3. 7 The Preferred Learning Styles of the Whole Survey

Students were asked to indicate what were generally their preferred learning styles. Table 7 displays students' responses to the items on their preference for different learning styles of question 1, page 167.

**Table 7 : Students' Preferred Learning Styles: Frequencies and Percentages (%)**

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
1	11 (3.1)	23 (6.6)	71 (20.3)	141 (40.3)	104 (29.7)	4	1
2	18 (5.2)	55 (15.8)	138 (39.7)	97 (27.9)	40 (11.5)	3	3
3	14 (4.0)	51 (14.6)	83 (23.8)	93 (26.6)	108 (30.9)	4	2
4	39 (11.4)	90 (26.3)	92 (26.9)	73 (21.3)	48 (14.0)	3	9
5	37 (10.6)	74 (21.3)	100 (28.7)	87 (25.0)	50 (14.4)	3	3
6	32 (9.3)	77 (22.4)	100 (29.2)	92 (26.8)	42 (12.2)	3	8
7	30 (8.8)	76 (22.4)	113 (33.2)	70 (20.6)	51 (15.0)	3	11
8	59 (17.1)	71 (20.5)	51 (14.5)	67 (19.1)	98 (28.3)	3	5
9	45 (13.1)	63 (18.4)	90 (26.2)	85 (24.8)	60 (17.5)	3	8
10	6 (1.8)	22 (6.5)	48 (14.1)	104 (30.6)	160 (47.1)	4	11
11	50 (14.4)	61 (17.6)	113 (32.6)	75 (21.6)	48 (13.8)	3	4
12	48 (13.8)	84 (24.1)	99 (28.4)	72 (20.7)	45 (12.9)	3	3
13	11 (3.2)	44 (12.6)	73 (20.9)	146 (41.8)	75 (21.5)	4	2
14	16 (4.7)	24 (7.0)	96 (28.0)	105 (30.6)	102 (29.7)	4	8
15	36 (10.4)	56 (16.2)	77 (22.3)	95 (27.5)	81 (23.5)	4	6
16	33 (9.5)	53 (15.3)	89 (25.7)	98 (28.3)	73 (21.1)	3	5

### **5. 3. 8 Comment on Students' Preference Learning Styles**

#### **Item 1: *Teacher talks/lectures:***

The majority of students in the survey liked this style a lot. The skew to the positive end of the scale (a lot and very much) indicates that a large majority had a positive attitude towards this style. This may be ascribed to the fact that they had been taught by means of the traditional method for a long time.

**Item 2: *Students make generalizations:***

Item 2 shows that there was a dispersion of the students' scores through the scale and over 30.0% of the survey respondents liked it a reasonable amount. This indicates that the high proportion of students in the survey group liked this style quite positively.

**Item 3: *Students ask questions:***

Item 3 indicates that students' answers were skewed to the positive end of the scale (very much) and 57.5% of them liked it strongly or more. This indicates that about half of the students enjoyed or welcomed asking questions.

**item 4: *Students present work to the group:***

The responses show that about a half percentage of the survey students liked the style a little or more. It can be noticed that the students' scores were distributed more evenly through the categories. This learning style was viewed negatively and positively by similar numbers of students.

**Item 5: *Students listen to others' presentations:***

The responses showed that around 53.7% of the students liked it a reasonable amount or more. There was a great variability in students' responses to this item. While there was a slight preference for this style; 30% of the sample held less favourable attitudes.

**Item 6: *Students make interpretations:***

Item 6 demonstrates that there was a great variability of students' scores across the categories, about 56.0% of the survey group preferred it a reasonable amount or more.

**Item 7: *Students formulate hypotheses:***

Table 6 indicates that about 30.0% of the students liked the style reasonably. Generally the students' scores were distributed more evenly across the scale. This suggests that the group has different feelings towards this style.



Item 8: *Watch a video or listen to a tape and make notes:*

The responses suggested that there was a great variability in students' responses but a high proportion liked this style very much.

Item 9: *Discussion in small groups:*

The responses showed that about half of the students that combined 26.2% preferred it reasonably and 24.8% preferred it strongly. Moreover the scores were distributed more evenly through the scale. Students have different perceptions in their preference of this style, though there is a slight positive skew.

Item 10: *Class discussion led by teacher:*

One can observe that the majority of the survey respondents (that included 47.1% liked it very strongly and 30.6% liked it strongly). Further the distribution of scores indicates that they generally had a strong positive attitude towards this kind of learning style and it may be reflected in the fact that class discussions of this kind are closely linked to the traditional method (item 1).

Item 11: *Students derive material from many sources to work on a given problem investigation or topic:*

This item indicates that there was a dispersion of the scores through the categories, and 32.6% of students liked it reasonably. This learning style was viewed negatively and positively by similar number of students.

Item 12: *Students organize an investigation on a given topic or problem:*

This item shows that there was a great variability in students' responses, It can be seen that some of the students liked it and others did not.

Item 13: *Students infer from given information:*

Item 13 shows that there was a distribution of the scores through the scale. The students' view of it was positive because 63.3% of students in the survey preferred it strongly or more.

Item 14: *Students draw conclusions:*

One can observe from the previous table that the scores here were clustered around the levels of (a lot and very much), the majority of the respondents that

included 30.6% preferred it strongly and 29.7% liked it very strongly. This indicates that this style has been strongly preferred.

*Item 15: Students distinguish between strong and weak arguments:*

The responses indicated that the students' scores were more evenly distributed across the categories, nearly half of the students that included 27.5% liked the style 'distinguish between strong and weak arguments' a lot and 23.5% liked it very much. This shows that students in the survey have different views towards this style, though there is a slight positive skew.

*Item 16: Students identify the problem and devise ways of investigating it:*

The above item illustrates that around 53.9% of students reported that they liked this style reasonably or more but the scores were more evenly distributed. From this it can be seen that students in the survey group liked this style a reasonable amount or more.

In summary it may be noted that students have a strong positive attitude towards the following styles: 'teacher talks/lectures', 'class discussion led by teacher', 'students infer from given information' and 'students draw conclusions'. These styles were linked to the traditional method that students were familiar with and they have been taught by this method for their whole school life. These styles are an answer to the first question of this study. Response towards the other learning styles, such as 'students make generalizations', 'students ask questions', 'presenting work to the group', 'listening to others' presentations', 'making interpretations', 'formulating hypothesis', 'watching a video or listening to a tape and making notes', 'discussion in small groups', 'deriving material from many sources to work on a given problem investigation or topic', 'organizing an investigation on a given topic or problem', 'distinguishing between strong and weak arguments', and 'identifying the problem and devising ways of investigation it' were more varied. This may indicate students' unfamiliarity with these learning styles, about which they may never even have heard, even though the researcher tried to explain each style to them during the



administration of the questionnaire. Alternatively students may have a genuine preference for these activities or find it easier to receive knowledge directly from the teachers.

### 5. 3. 9 Students' Comments on the Use of Different Learning Styles in History

Students were asked to indicate how often these learning styles are used in history lessons. Table 8 displays students' responses to items on the use of learning styles in history, question 2, page 167.

Table 8: Using Different Learning Styles: The Frequencies and Percentages (%)

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
1	2 (0.6)	17 (4.8)	40 (11.4)	110 (31.3)	182 (51.9)	5	-
2	45 (12.9)	85 (24.4)	124 (35.3)	68 (19.4)	26 (7.5)	3	3
3	42 (12.1)	79 (22.8)	76 (21.9)	81 (23.3)	69 (19.9)	3	4
4	84 (24.1)	104 (29.9)	90 (25.9)	43 (12.4)	27 (7.8)	2	3
5	59 (17.1)	74 (21.4)	98 (28.3)	84 (24.3)	31 (8.8)	3	5
6	55 (15.9)	85 (24.5)	89 (25.6)	80 (23.1)	38 (11.0)	3	4
7	66 (19.1)	100 (29.0)	93 (27.0)	61 (17.7)	25 (7.2)	3	6
8	214 (61.5)	55 (15.8)	35 (10.1)	24 (6.9)	20 (5.7)	1	3
9	115 (33.1)	92 (26.5)	71 (20.5)	44 (12.5)	25 (7.2)	2	4
10	6 (1.7)	19 (5.5)	39 (11.4)	109 (31.8)	170 (49.6)	4	8
11	95 (27.4)	92 (26.5)	99 (28.5)	40 (11.5)	21 (6.1)	2	4
12	87 (25.5)	114 (33.0)	73 (21.2)	50 (14.5)	21 (6.1)	2	6
13	22 (6.5)	69 (20.3)	103 (30.3)	102 (30.0)	44 (12.9)	3	11
14	26 (7.6)	71 (20.6)	90 (26.2)	87 (25.3)	70 (20.3)	3	7
15	63 (18.3)	78 (22.7)	72 (20.9)	77 (22.4)	54 (15.7)	3	7
16	59 (17.1)	74 (21.4)	98 (28.3)	84 (24.3)	31 (8.8)	2	5



### **5.3. 10 Comments on using different learning styles**

#### **Item 1: *Teacher talks/lectures:***

One can observe a broad agreement across the sample (83.2%) that this style was used frequently or more frequently while only a low percentage reported that it had not been used at all. It seems that the lecture or the traditional method is used very frequently in history lessons. This reflects the widespread use of the traditional method in secondary schools.

#### **Item 2: *Students make generalizations:***

The responses demonstrated that there was a wide spread of scores across the scale and students who indicated that this style was not been used hardly at all were greater in number than those who reported that it was used frequently. This shows that this style has been used not at all or rarely.

#### **Item 3: *Students ask questions:***

Item 3 shows that the students' responses were evenly distributed through all the categories. It is clear that students have different views about using this style in history. It is also clear that this style has been used a little.

#### **Item 4: *Students present work to the group:***

The above item indicates that the students' answers were distributed through the scale and the percentage of students who agreed that it had never been used was greater than those who indicated that it had been used frequently. This shows that this style has not been used in history at all or rarely.

#### **Item 5: *Students listen to others' presentations:***

Item 5 shows that there was a dispersion of students' answers through the scale. Some of them reported that it had been used reasonably but the percentage of students who indicated that it had not been used at all or rarely was higher than those who indicated that it was used reasonably or more. It seems that this style had not been used very frequently in history lessons.

**Item 6: *Students make interpretations:***

The number of students who indicated that this style was used more often or always was lower than those who stated that it had not been used frequently or often. In general the scores were distributed more evenly through all the categories and this kind of learning style has been used in history lessons hardly at all or rarely.

**Item 7: *Students formulate hypothesis:***

Item 7 shows that the scores were distributed through the scale, about 56.0% of the students reported that it had been used a little or less. The percentage here was higher than of those who stated that they had used it reasonably or frequently. Thus, this style was used hardly at all or rarely.

**Item 8: *Watch a video or listen to a tape and make notes:***

It can be noticed that the students' scores were skewed to the negative end of the scale (very little and hardly at all). They reported that it had not been used in history lessons at all. The percentage of them was greater than the percentage of those who reported that it had been used frequently or always. This indicates that using this style in history lessons was negligible.

**Item 9: *Discussion in small group:***

This style was reportedly used in history very rarely. The proportion of students who reported this was higher than those who stated that it was used frequently or a reasonable amount. The scores were skewed to the end of the scale (very little and hardly at all). It can be seen that the style 'discussion in small groups' was not generally used in history lessons in the first year of secondary school generally.

**Item 10: *Class discussion led by teacher:***

The scores are skewed to the end of the scale (a lot and very much). The majority of the survey respondents (49.6%) indicated that this style was used very much and (31.8%) reported that it was used a lot. The percentage was higher than of those who stated that it was used negligibly or rarely. It seems that this kind of learning style was used considerably in history; this may be attributed to the



widespread use of the traditional method at all stages in schools in Saudi Arabia as indicated previously.

Item 11: *Students derive material from many sources to work on a given problem investigation or topic:*

This item indicates that the students' answers were distributed through all the categories, nearly half the sample reported that it was never or very rarely used, only one third of them indicated that it had been used a reasonable amount or more. It can be seen that this style was used very rarely.

Item 12: *Students organize an investigation on a given topic or problem:*

Table 8 illustrates that the distribution of students' answers tended to skew to the end of the scale (very little and hardly at all), the high proportion indicated that this style has been used very rarely. This shows that this style has not been used in history at all or rarely.

Item 13: *Students infer from given information:*

Most of the students in the whole sample that included 30.3% indicated that the style this style was used reasonably in history lessons and 30.0% reported that it was used frequently, while the lowest proportion disagreed with that completely, the scores were clustered around (reasonably and a lot categories). The above table indicates also that there was a more even distribution of the students' answers across all the categories. Thus, this style was used a little or more in history lessons.

Item 14: *Students draw conclusions:*

Item 14 indicates that the scores were distributed through the scale, about 51.5% of the survey responded toward the positive end of the scale. This indicates that this style was used frequently in history lessons.

Item 15: *Students distinguish between strong and weak arguments:*

Responses to this item indicate that students' responses were clustered around the middle or the centre of the scale but the proportion of those who indicated that it was not been used was quite close to those who stated that it was used frequently or more. This shows that this style has been used a lot or less.



Item 16: *Students identify the problem and devise ways of investigating it:*

This item indicates that it had been used reasonably while the rest of them reported that it was used negligibly or rarely. Generally the scores were distributed across all the categories. This shows that this style has been used very rarely in history lessons.

To sum up it can be seen that the style 'teacher talks/lectures' and 'class discussion led by teacher' have been used very frequently in history, this reflects the widespread of using the traditional method in secondary school. This answers question 2, page 167 of this study. Further, the rest of the learning styles have been used rarely or reasonably and this may refer to the fact that they have been introduced to some teachers during their studies in the colleges of education, who then tried to use them from time to time in some schools. This may also explain why some of the students' answers were similar and others different.

### **5. 3. 11 Students' Enjoyment of Different Learning Styles**

Students were asked to indicate to what extent these learning styles affect their enjoyment of history. Table 9 shows students' responses to the items on their enjoyment of different learning styles of question 3, page 167 in this chapter.

**Table 9: Students' Enjoyment of Different Learning Styles:  
The Frequencies and Percentages (%)**

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
1	9 (2.6)	18 (5.2)	44 (12.6)	107 (30.7)	171 (49.0)	4	2
2	33 (9.4)	79 (22.6)	108 (30.9)	94 (26.9)	36 (10.3)	3	1
3	21 (6.0)	41 (11.7)	80 (22.9)	124 (35.5)	83 (23.8)	4	2
4	39 (11.4)	83 (24.3)	98 (28.7)	78 (22.8)	44 (12.9)	3	9
5	35 (10.1)	68 (19.7)	106 (30.6)	89 (25.7)	48 (13.9)	3	5
6	33 (9.5)	76 (21.8)	89 (25.6)	91 (26.1)	59 (17.0)	3	3
7	48 (14.0)	73 (21.3)	102 (29.8)	82 (24.0)	37 (10.8)	3	9
8	76 (22.0)	44 (12.8)	43 (12.5)	70 (20.3)	112 (32.5)	4	6
9	43 (12.5)	64 (18.6)	80 (23.3)	100 (29.1)	57 (16.6)	3	7
10	15 (4.3)	27 (7.8)	54 (15.7)	80 (23.2)	169 (49.0)	4	6
11	56 (16.2)	78 (22.5)	121 (35.0)	64 (18.5)	27 (7.8)	3	5
12	43 (12.3)	82 (23.5)	96 (27.5)	91 (26.1)	37 (10.6)	3	2
13	15 (4.4)	48 (14.0)	100 (29.1)	119 (34.6)	62 (18.0)	4	7
14	26 (7.6)	47 (13.7)	81 (23.5)	100 (29.1)	90 (26.2)	4	7
15	34 (9.7)	70 (20.0)	83 (23.7)	88 (25.1)	75 (21.4)	4	1
16	51 (14.6)	61 (17.4)	91 (26.0)	83 (23.7)	64 (18.3)	3	1

### **5. 3. 12 Comment on Students' Enjoyment of Different Learning Styles**

#### **Item 1: *Teacher talks/ lectures:***

It can be seen from table 9 that the students' answers were strongly skewed to the positive end of the scale (a lot and very much) and the majority of students enjoyed it strongly or more while few of them enjoyed it hardly at all. This indicates that students liked this style very considerably. This may be so because they have been used to being taught by means of the traditional method for a long time.

**Item 2: *Students make generalizations:***

Table 9 illustrates that about 30.9% of them did enjoy it a reasonable amount or more whereas only 9.4% of them did not enjoy it at all. Further, there was a wide dispersion of scores through the scale. This indicates that some of the students generally had a positive attitude towards it and the others did not like it at all.

**Item 3: *Students ask questions:***

Item 3 shows that the scores tended to be clustered around the end of the scale (a lot), over 30.0% of the responses recorded a higher percentage of those enjoying it than those who enjoyed it rarely or never. It may be seen that students seemed to enjoy this style very positively.

**Item 4: *Present work to the group:***

The responses indicated that students enjoyed this style a reasonable amount or more. The students' answers were distributed across the scale, some of them enjoyed it and the others did not enjoy it. From that it may be noticed that students in the survey had different views with regards to their enjoyment of this style.

**Item 5: *Students listen to others' presentations:***

Item 5 demonstrates that around 56.3% of the students in the whole sample enjoyed this reasonably or more. The rest of them had different views of enjoyment, the scores were distributed across the scale. From that it can be noticed that students enjoyed this style quite positively.

**Item 6: *Students make interpretations:***

It can be seen that there was a wide distribution of the students' answers through the scale, around 51.7% of students enjoyed this style a lot or less. More students enjoyed it more than those who did not enjoy it at all or rarely. This indicates that most students in the survey enjoyed this style positively .

**Item 7: *Students formulate hypothesis:***

The previous table shows that the scores were distributed across the scale, about 53.8% of the students enjoyed it a reasonable amount or more, and the rest of



them shared the view of enjoyment or unenjoyment of this style. It can be seen that students viewed this style positively.

Item 8: *Watch a video or listen to a tape and make notes:*

The responses showed that about 52.8% of the survey students reported that they had enjoyed this style very strongly, and more than those who had not enjoyed it at all. Further the students' answers were distributed evenly through all categories but around 22.0% of them enjoyed it hardly at all. In general, most students in the whole sample enjoyed it positively.

Item 9: *Discussion in small group:*

It can be concluded that there was a dispersion of the scores across the scale but around 52.4% of the students in the whole sample had enjoyed this style considerably. The proportion of those who did not enjoy it at all or rarely was lower than those who enjoyed it very strongly. This indicates that they enjoyed it positively.

Item 10: *Class discussion led by teacher:*

The responses showed that about 49.0% of the students agreed that they enjoyed this style very strongly, whereas a minority never or rarely enjoyed it. Further their scores were clustered around the positive end of the scale (a lot and very much). This may be attributed to the fact that they were used to being taught by the traditional method which was the most common method used in schools in Saudi Arabia (mentioned previously).

Item 11: *Students derive material from many sources to work on a given problem investigation or topic:*

Item 11 indicates that the percentage of students who did not enjoy this style was lower than those who enjoyed it a reasonable amount. Around 57.5% of them enjoyed it very little or more. This shows that students enjoyed this style quite positively.

Item 12: *Students organize an investigation on a given topic or problem:*

Item 12 demonstrates that there was a distribution of students' answers across the categories and over a quarter of students in the whole survey did enjoy it more

than those who did not enjoy it. This indicates that students have different views of enjoyment of this style.

**Item 13: *Students infer from given information:***

The preceding table shows that the over 63.7% of the students indicated that they enjoyed it reasonably or more and their answers were clustered around the mid point of the scale. It can be noticed that there was a positive skew in this distribution and students enjoyed it positively.

**Item 14: *Students draw conclusions:***

Table 9 shows that the scores were distributed through the scale and about half of the students enjoyed this kind of learning style a lot or more in comparison to those who had never enjoyed it. This gives us that students in the whole sample enjoyed this style strongly or more.

**Item 15: *Students distinguish between strong and weak arguments:***

The responses indicated that most of the respondents indicated that they enjoyed the style a reasonable amount, although the students' answers were evenly distributed through the scale. In general students enjoyed this style strongly.

**Item 16: *Students identify the problem and devise ways of investigating it:***

The responses indicated that most of the students enjoyed the style a reasonable amount or more, whereas around 14.6% of them did not enjoy it at all. However, students have different views of enjoyment of this style as their scores were distributed across the all categories.

In summary, students in the survey group enjoyed the following styles: 'teacher talks/lectures', 'students ask questions', 'watch a video or listen to a tape and make notes', 'class discussion led by teacher', 'students infer from given information', 'students draw conclusions', and 'students distinguish between strong and weak arguments' strongly or more. They enjoyed the other styles reasonably or less. This reflects students' needs to different learning styles.



### 5. 3. 13 Students' Enjoyment of Using Different Resources

The survey respondents were also asked to indicate the extent to which using different resources affected their enjoyment of history in question 4, page 167. Table 10 displays their responses to the items on their enjoyment of using different resources.

Table 10: Students' Enjoyment of Using Different Resources:  
Frequencies and Percentages (%)

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
1	11 (3.2)	22 (6.3)	74 (21.3)	134 (38.6)	106 (30.5)	4	4
2	28 (8.1)	63 (18.2)	103 (29.7)	96 (27.7)	57 (16.4)	3	4
3	38 (10.9)	34 (9.7)	52 (14.9)	77 (22.0)	149 (42.6)	4	1
4	34 (9.8)	39 (11.2)	64 (18.4)	85 (24.4)	126 (36.2)	4	3
5	47 (13.7)	52 (15.1)	89 (25.9)	78 (22.7)	78 (22.7)	3	7
6	11 (3.2)	35 (10.1)	77 (22.1)	119 (34.2)	106 (30.5)	4	3
7	10 (2.9)	24 (6.9)	57 (16.4)	115 (33.1)	141 (40.6)	4	4
8	32 (9.1)	44 (12.6)	89 (25.4)	107 (30.6)	78 (22.3)	4	1

### 5. 3. 14 Comments on Students' Enjoyment of Using Different Resources

#### Item 1: *Books*:

Most of the students reported that they enjoyed the books a lot or more while the lowest percentage of them did not enjoy them much. As long as students were used to working with the textbooks in schools, they enjoyed them generally positively because their answers were skewed to the positive end of the scale.

#### Item 2: *Documents*:

The responses indicated that there was a wide dispersion of students' answers through the categories and about 57.4% of students enjoyed documents in history reasonably or more, only 8.1% of them did not like them at all. It can be seen that documents affected students' enjoyment of history a reasonable amount.



**Item 3: *Video*:**

Item 3 shows that the students' answers were skewed to the positive end of the scale. Over 40.0% of the students stated that they had enjoyed it very much. This reflects students' positive enjoyment of this resource. Using the video received strong positive response from students in the secondary schools.

**Item 4: *Television*:**

The responses indicated that the scores were skewed to the positive end of the scale (very much) and there was strong agreement between students in their enjoyment of using the TV very much. They generally had strong positive attitude towards using the TV.

**Item 5: *Audio cassette*:**

Item 5 indicates that there was an even distribution of the students' scores across the scale, about a quarter of the students in the survey agreed that they enjoyed using the audio cassette a reasonable amount and the minority of them reported that they never or rarely enjoyed it. Further, the proportion of those who enjoyed it strongly or more was higher than those who did not enjoy it. Students in general had a positive attitude towards this kind of resource.

**Item 6: *Pictures*:**

The general impression from table 10 is that around 64.0% of students that included enjoyed using pictures in history considerably or more and the minority of them did not. Moreover the students' answers were skewed to the positive end of the scale. This supports the importance of using pictures in history lessons as they might play a significant role in students' enjoyment of history and gives an indication that they had a positive attitude towards them.

**Item 7: *Maps*:**

It can be seen that the students' scores were clustered around the positive end of the scale and there was a broad agreement among students that they enjoyed maps a lot or more.

### Item 8: *Transparencies*:

Item 8 indicates strong agreement among students in their enjoyment of them and a small percentage of them 9.1% indicating that they did not enjoy them at all. The median was 4. Further the students' scores were distributed through the scale. It seems also that students generally had a very positive attitude towards using transparencies and they enjoyed them strongly.

In summary students enjoyed using maps, books and pictures very positively than others This explains that, apart from the prescribed textbook which contained some pictures, the resource that teachers usually used most were the maps. Further students enjoyed using documents, audio cassette and transparencies quite positively, this may refer that teachers have not been use them in history. This reflects the importance of motivation in the learning teaching process and the students' needs to use different resources in history.

### 5. 3. 15 Students' View of Their History Teacher

Students in the whole survey were asked to describe their feelings about their history teacher. Table 11 shows students' responses to the items on their description their teacher of question 5, page 167 in this chapter.

Table 11: Students' View of their Teacher: Frequencies and Percentages (%)

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
1	16 (4.6)	11 (3.2)	52 (15.0)	86 (24.9)	181 (52.3)	5	5
2	13 (3.7)	17 (4.9)	46 (13.1)	104 (29.8)	169 (48.4)	4	2
3	21 (6.0)	20 (5.7)	41 (11.8)	90 (25.9)	176 (50.6)	5	3
4	34 (9.9)	43 (12.5)	76 (22.0)	99 (28.7)	93 (27.0)	4	6
5	15 (4.3)	32 (9.2)	55 (15.9)	106 (30.6)	138 (39.9)	4	5
6	21 (6.0)	26 (7.4)	59 (16.9)	95 (27.2)	148 (42.4)	4	2
7	30 (8.6)	38 (11.0)	58 (16.7)	88 (25.4)	133 (38.3)	4	4
8	23 (6.6)	38 (11.0)	70 (20.2)	82 (23.6)	134 (38.6)	4	4
9	37 (10.7)	47 (13.5)	82 (23.6)	100 (28.8)	81 (23.3)	4	4



### **5.3.16 Comments on Students' View Their Teacher**

#### **Item 1: *Helpful:***

The above table indicates that over half of the students believed that the teacher was very helpful with only a small percentage of them describing him as unhelpful. The scores were evenly distributed through the categories. This indicates that the history teacher was very helpful and students generally had a very good impression towards him, further it can be noticed that the differences could relate to different teachers.

#### **Item 2: *Careful:***

The responses shows that the over half of students in the whole sample had a broad agreement that their history teacher was very careful. A small proportion of them believed that he was careless. Students' scores were clustered around the categories (a lot and very much), therefore they had strong positive attitude towards their history teacher.

#### **Item 3: *Co-operative:***

Item 3 shows that the scores were distributed through the scale and a high proportion of students (50.6%) indicated that their teacher was extremely co-operative, in comparison with a small proportion of them who had a negative feeling towards him. The differences could relate to different teachers. This shows that students generally described their history teacher as very co-operative.

#### **Item 4: *Flexible:***

It can be clearly seen that students' answers were distributed across the categories though there was a general agreement between students in describing their teacher as flexible, with a minority of them having a negative feeling about him as inflexible. Students generally described their history teacher as flexible.

#### **Item 5: *Responsive:***

It has been clear that students' answers were clustered around the positive end categories, though there was strong agreement among students in describing their



teacher as responsive. This indicates that the history teachers were viewed as very responsive.

**Item 6: *Giving strong direction:***

The responses demonstrated that the students' scores were skewed to the positive end of the scale. 39.9% of students described him as giving them strong direction whereas the minority had an opposite feeling in giving them very weak direction. It has been clear that students described their history teacher as giving them strong direction.

**Item 7: *Friendly:***

Item 7 indicates that there was a skewing of the students' answers to the positive end of the scale (very friendly), around 38.3% of the students reported that their history teacher was very friendly whereas a small percentage of them described him as completely unfriendly. Students in the whole sample viewed their history teacher as very friendly.

**Item 8: *Enthusiastic:***

The responses showed that the students' answers were skewed to the positive end of the scale (very enthusiastic) and around 38.6% of students in the whole survey described their teacher as very enthusiastic. Thus history teachers were viewed as very enthusiastic.

**Item 9: *Amenable:***

Item 9 shows that the scores were distributed more evenly through the scale, most of the students in the sample viewed their teacher as reasonably amenable or more.

In summary, students have strong positive attitudes towards their history teachers particularly with regard to them being helpful, careful, co-operative, flexible, responsive, giving strong direction, friendly, enthusiastic and amenable. This reflects the importance of taking advantage of this point to encourage the teachers to use many different kinds of learning styles during teaching.

### 5. 3. 17 Students' Enjoyment of the Content of the History Curriculum

Students were asked to indicate how much the curriculum content affected their enjoyment in history. Table 12 shows students' responses to this item of question 6, page 167 in this chapter.

Table 12 : Students' Enjoyment of the Content of the History Curriculum: the Frequencies and Percentages (%)

Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
4 (1.2)	11 (3.2)	84 (24.4)	153 (44.5)	92 (26.7)	4	7

The above table shows that students' answers were distributed evenly through the scale, around 44.5% of them stated that they enjoyed history content a lot. The proportion of those who enjoyed it very much was higher than those who did not enjoy it at all or rarely. It can be concluded that they enjoyed the content of the history curriculum a lot or more. This answers the sixth question of this study. This may be referred to the nature of the history content that related to the history of the Prophet that students have studied in the first year of the secondary school.

### 5. 3. 18 Students' Enjoyment of History, Geography and Science

Students were asked to indicate the extent to which they enjoyed history, geography and science. Table 13 shows students' responses to these items of question 7, page 167.

Table 13 : Students' Enjoyment of History, Geography and Science: Frequencies and Percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
History	0	4 (1.1)	37 (10.6)	127 (36.5)	180 (51.7)	5	3
Geography	0	9 (2.6)	70 (20.1)	133 (38.1)	137 (39.3)	4	2
Science	8 (2.3)	14 (4.0)	48 (13.8)	90 (25.8)	189 (54.2)	5	2

### 5. 3. 19 Comments on Students' Enjoyment of History, Geography and Science

#### *History:*

It can be seen that students' scores skewed to the positive end of the scale. Most of the survey group indicated that they enjoyed history very much.

#### *Geography:*

The responses indicated that the scores were skewed to the positive end of the scale. Most students in the survey enjoyed geography a lot or very much but they did not view it as positively as history.

#### *Science:*

The previous table shows that the scores were skewed to the positive end of the scale. Over half of the survey enjoyed science very much. While many students viewed science very positively, a small number viewed it negatively. Though this small proportion is greater than for history and geography.

To sum up, students enjoyed history, geography and science very positively and this answers the seventh question of this study.

### 5. 3. 20 Trying Different Learning styles

The students in the whole sample were asked to indicate how far they would be interested in trying some of the learning styles. Table 14 displays students' responses to the items of trying different learning styles of question 8, page 167.

Table 14: Trying Different Learning Styles: Frequencies and Percentages (%)

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
1	24 (6.9)	60 (17.2)	133 (38.1)	100 (28.5)	32 (9.1)	3	2
2	42 (12.0)	72 (20.6)	118 (33.7)	82 (23.4)	36 (10.3)	3	1
3	20 (5.8)	63 (18.3)	100 (29.0)	119 (34.5)	43 (12.5)	3	6
4	21 (6.1)	60 (17.4)	88 (25.6)	111 (32.3)	64 (18.6)	4	7
5	41 (11.8)	50 (14.4)	77 (22.2)	89 (25.6)	90 (25.9)	4	4
6	11 (3.2)	26 (7.6)	67 (19.5)	112 (32.6)	128 (37.2)	4	7



### **5.3.21 Comments on trying different learning styles**

#### **Item 1: *Students work in pairs or small groups:***

It can be seen that there was a dispersion of the scores through the scale, over 70.0% of the students in the group agreed that they would be interested in trying this style. This indicates that students generally liked this style.

#### **Item 2: *Students prepare essays alone:***

The responses indicated that about 33.7% of the students in the survey were prepared to try this style a reasonable amount, further the proportion of those who would be interested in trying it very much was higher than those who would not like to at all or rarely. The scores were distributed through the scale while many students enjoyed this style, several viewed it unfavourably.

#### **Item 3: *Students prepare essays in groups:***

The students' answers were clustered around the centre: 63.5% of them indicated that they would be interested in trying it strongly. Students enjoyed this style a lot.

#### **Item 4: *Students make notes from books:***

There was a distribution of the scores through the categories, over 30.0% of students were interested in trying this style. In general students enjoyed this style though a number viewed it negatively.

#### **Item 5: *Research on a topic / project using a library:***

It may be seen from this item that the students' answers were distributed more evenly across the categories and a high proportion of students was interested in trying research on a topic/ project using a library. It seems that students had a strong positive attitude towards this kind of learning style, which may be related to some extent to the inquiry method.

#### **Item 6: *Teacher dictates notes:***

Item 6 indicates that most of the students, 37.2% very much and 32.6% a lot, were keenly interested or more in trying this style. The students' scores were clustered

around the categories a lot and very much. This underlies the point that students still liked receiving knowledge and information from the teacher, it seems that this springs from the fact that they were used to working with the traditional method, which is based on the teacher's effort.

In summary, students showed interest in trying the styles 'students work in pairs or small groups' and 'students prepare essays alone' reasonably. Further they enjoyed 'preparing essays in groups' 'making notes from books' a lot while they enjoyed the styles 'research on a topic/ project using a library' and 'teacher dictates notes' more strongly. This suggests the students' needs to participate in the learning and teaching process not only receiving knowledge from the teacher, but also to work in groups, to prepare essays and to carry out research or a project using the library. This seems to answers the eighth question in this study.

### 5. 3. 22 Using Teaching Resources in History

Students in the survey were asked how much a variety of named resources were used in history lessons. Table 15 shows students' responses to the items on using different resources in history lessons of question 9, page 167.

Table 15: Using Different Resources in History Lessons:  
Frequencies and Percentages (%)

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
1	13 (3.7)	22 (6.3)	54 (15.4)	124 (35.3)	138 (39.3)	4	-
2	80 (22.8)	78 (22.2)	95 (27.1)	69 (19.7)	29 (8.3)	3	-
3	156 (44.8)	53 (15.2)	38 (10.9)	45 (12.9)	56 (16.1)	2	3
4	158 (45.3)	56 (16.0)	48 (13.8)	36 (10.3)	51 (14.6)	2	2
5	182 (52.1)	50 (14.3)	47 (13.5)	36 (10.3)	34 (9.7)	1	2
6	69 (19.9)	60 (17.3)	72 (20.7)	82 (23.6)	64 (18.4)	3	4
7	22 (6.4)	37 (10.8)	63 (18.3)	101 (29.0)	121 (35.2)	4	7
8	131 (37.4)	72 (20.6)	66 (18.9)	44 (12.6)	37 (10.6)	2	1



### **5.3.23 Comments on Using Different Resources in History Lessons**

#### **Item 1: *Books:***

In relation to using books a significant majority of students indicated that books had been used very frequently and only a small proportion indicated that they believed that they had never been used at all. Moreover the students' answers were skewed to the positive end of the scale (a lot and very much). This indicates that students were accustomed to using the history textbook in schools all the time.

#### **Item 2: *Documents:***

In relation to using documents in history lessons it can be noticed that the proportion of students who reported that they have not been used at all or rarely was higher than those who stated that they have been used a lot or more. It can be seen that documents have been used very little in history lessons.

#### **Item 3: *Video:***

It may be seen from this item that around 44.8% of students did not use it often whereas some of them believed that it had been used quite frequently. The scores were skewed to the negative end of the scale. It seems that the video had been used in history very little or less.

#### **Item 4: *Television:***

As many as 45.3% of students reported that they had never or only rarely used television in history whereas the minority of them indicated that it had been used a reasonable amount. This shows that television had been used in history lessons very little.

#### **Item 5: *Audio cassette:***

The responses indicated that a high proportion of the students stated that audio cassette had not been used in history lessons at all, the students' scores were skewed to the negative end of the scale (hardly at all). It seems that audio cassette had not been used very much in history lessons.



#### Item 6: *Pictures*:

The responses indicated that there was a wide dispersion of the scores through the scale and around 23.6% of the group indicated that they have been used frequently whereas the 37.2% reported that they have not been used hardly at all or rarely. It has been clear that pictures had been used very little.

#### Item 7: *Maps*:

Item 7 shows that most of the survey respondents indicated that next to books they used maps very frequently in history lessons. It is clear that maps are the resources which are used more frequently in history teaching than others because the students' scores were skewed to the positive end of the scale.

#### Item 8: *Transparencies*:

Students' answers were skewed to the negative end of the scale. Transparencies had been used only rarely or not at all, whereas some of them reported that they had been used a reasonable amount. It can be seen that transparencies had been used in history lessons very little. The spread of scores suggests however that some students were familiar with this resource.

To sum up, some resources are used very frequently in history e.g. books and maps while documents, video, television, audio cassette and transparencies were used very little or less. This may be explained by the following points:

1. The nature of the history content does not demand using resources such as video or TV.
2. Some of the teachers have been introduced to different kinds of educational resources during their studying at colleges of education and some of them have not.
3. Some of the schools have complete facilities and others have not.
4. Some of the teachers are reluctant to change their teaching.

Books and maps were the resources most used in history lessons and this answers the ninth question of this study.

### 5. 3. 24 Students' Perception of the Importance of History and Its Reasons

The following section is based on the students' views of the importance of history and the reasons that make it important or not important in schools. Table 16 shows students' answers to question 10, page 168 on the importance of history.

Table 16 : The Importance of History: Frequencies and Percentages (%)

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
History	0	4 (1.1)	37 (10.6)	127 (36.5)	180 (51.7)	5	3
Geography	0	9 (2.6)	70 (20.1)	133 (38.1)	137 (39.3)	4	2
Science	8 (2.3)	14 (4.0)	48 (13.8)	90 (25.8)	189 (54.2)	5	2

Table 15 shows that the majority of the sample 87% viewed history as important or highly, while only a small percentage of them reported that it was of little importance. A lower proportion (77.4%) found geography important or very important, and 80% of them indicated that science was important or very important. The distribution of scores shows that students had a positive attitude towards history, geography and science generally. History comes at the first choice of students' importance then science and geography. This answers the tenth question in this research.

### 5. 3. 25 The Reasons for the Importance of History

Students were asked to indicate why history might be important and how important the reasons are. Table 17 displays their responses to the items on the reasons for history importance of question 11, page 168.

**Table 17: The Reasons for the Importance of History:  
Frequencies and Percentages (%)**

Items	Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
1	12 (3.4)	33 (9.5)	111 (31.9)	125 (35.9)	67 (19.3)	4	3
2	13 (3.8)	36 (10.4)	78 (22.5)	136 (39.3)	83 (24.0)	4	5
3	15 (4.3)	29 (8.4)	85 (24.5)	120 (34.6)	98 (28.2)	4	4
4	8 (2.3)	28 (8.0)	70 (20.1)	135 (38.7)	108 (30.9)	4	2
5	11 (3.1)	25 (7.1)	63 (18.0)	120 (34.3)	131 (37.4)	4	1
6	6 (1.7)	11 (3.2)	44 (12.6)	129 (37.1)	158 (45.4)	4	3
7	34 (9.7)	27 (7.7)	57 (16.2)	97 (27.6)	136 (38.7)	4	-
8	53 (15.1)	46 (13.1)	108 (30.8)	91 (25.9)	53 (15.1)	3	-

### **5.3.26 Comments on the Reasons for the Importance of History**

#### **Item 1: *To get good Jobs:***

The above table indicates that there was a dispersion of scores across the scale, around 67.8% of the sample felt strongly that history was important in getting good jobs. Thus, history was strongly important to get good jobs.

#### **Item 2: *To get by in life:***

Item 2 demonstrates that most students (63%) felt that history was important to get by in life. Students' scores were skewed to the positive end of the scale.

#### **Item 3: *For enjoyment:***

The responses indicated that the scores were distributed through the scale. Most students reported a reasonable or great enjoyment of history. Only a small percentage of them did not feel that history could contribute to enjoyment of life.

#### **Item 4: *To gain qualifications:***

It can be seen that most students believed that this reason was important. History was seen to be important in order to enable students generally to gain more qualifications and the students' answers were clustered around the levels of 'a lot' and



'very much'. This may be explained by the fact that gaining historical qualifications may enable people to have the opportunity to work in different jobs.

Item 5: *To gain social status:*

There were indications that the scores were skewed to the positive end of the scale, the majority of the survey shared a broad agreement that history was important in order to gain social status in comparison with the minority of them who reported that it was seen as unimportant. It can be seen that students felt that history was important to enable them to gain social status very strongly.

Item 6: *To take part in cultural life:*

About 45.4% of students felt that this reason was very important. The students' answers were skewed to the positive end of the scale. This shows that this reason was considered very important.

Item 7: *To act on parental advice:*

The responses indicated that the around 38.7% of students reported that this reason was extremely important in making history important. The scores were generally distributed through the scale.

Item 8: *To act on friends' advice:*

It can be seen that around 30.8% of students reported that this was a little of importance in making history important in schools, further the proportion of those who indicated that it was very important was higher than those who stated that it was unimportant. Students' scores were distributed through the categories. It can be seen that many students studied history in accordance with their friends' advice.

In summary students felt that the most important reasons for studying history in schools were: 'to get good jobs', 'to get by in life', 'for enjoyment' and 'to act on parental advice', further the reasons 'to gain qualifications', 'to gain social status and 'to take part in cultural life' were viewed very important while the reason 'to act on friends' advice' was viewed as less important. Generally most of these reasons seemed important.

### 5. 3. 27 The Easiness of History, Geography and Science

Students were asked to indicate how easy they find these subjects. Table 18 show students' responses to these items of question 12, page 168.

Table 18: the Easiness of History, Geography and Science:  
Frequencies and Percentages (%)

Items	Very easy	Easy	Sometime easy/difficult	Hard	Very hard	Median	Missing
History	50 (14.2)	94 (26.8)	163 (46.4)	26 (7.4)	18 (5.1)	3	0
Geography	48 (13.7)	128 (36.6)	135 (38.6)	25 (7.1)	14 (4.0)	2	1
Science	27 (7.7)	80 (23.0)	114 (32.8)	80 (23.0)	47 (13.5)	3	3

#### *The Easiness of History:*

The scores were distributed through all the categories. The responses indicated that nearly half of the students believed that history was reasonably easy and a further 44% found it easy. Some of them felt that it was hard while a few reported that it was very easy.

#### *The Easiness of Geography:*

As with history it can be seen that students' scores were clustered around the mid point of the scale, the majority of them agreed that geography was sometimes easy/ difficult or less. It seems that geography was in general easy.

#### *The Easiness of Science:*

This item shows that students' scores were more evenly distributed across the scale. About 32.8% of them found science sometimes easy/ difficult. This indicates that science was viewed negatively and positively by the same number of students.

In short students found history and geography easy while to some extent they found science quite hard. This answers question 12.

### 5. 3. 28 Studying History in Higher Education

Table 19 shows the students' intention to study history, geography and science in their higher education to answer question 13, page 168.

**Table 19 : Students' Intention to Take History, Geography and Science at Higher Education: Frequencies and Percentages (%)**

Items	Yes	No	Median	Missing
History	165 (47.0)	186 (53.0)	.00	0
Geography	162 (46.2)	189 (53.8)	.00	0
Science	195 (55.6)	156 (44.4)	1	0

It may be noticed that over 53.0% of the whole sample would not be interested to study history at higher education whereas the rest of them wanted to study it in the future. Around 53.8 of them were not interested to study geography at their future as well whilst 55.6% of them intended to take science in their higher education. This indicates that students who would not be interested to study history and geography were higher than others who did not intend to take it, however, a higher proportion would be interested to study science. This shows that science comes the first choice for students then history and geography. This is an interesting finding because students found science hard to memorize and remember, even though they would choose it in their future.

### 5. 3. 29 The Easiness of Memorizing and Remembering History, Geography and Science

Students were asked to indicate how easy it was to memorize and remember history, geography and science. Table 20 show students' responses to these items of question 14, page 168.



Table 20: the Easiness of Memorization and Remembering of History, Geography and Science: Frequencies and Percentages (%)

Items	Very easy	Easy	Sometime easy/difficult	Hard	Very hard	Median	Missing
History	49 (14.0)	106 (30.3)	145 (41.4)	37 (10.6)	13 (3.7)	3	1
Geography	36 (10.3)	148 (42.3)	127 (36.3)	26 (7.4)	13 (3.7)	2	1
Science	20 (5.7)	60 (17.1)	141 (40.2)	85 (24.2)	45 (12.8)	3	0

### *Memorizing History:*

In relation to the easiness of memorizing and remembering in history, over 40.0% of students indicated that they found history sometimes easy and occasionally hard while some of them found it reasonably easy. The students' answers were clustered around the centre of the scale. Further, a small percentage of them reported that it was very hard. Apparently students found history very easy to memorize and remember.

### *Memorizing Geography:*

It can be seen that students' scores were again clustered around the mid point of the scale and the majority of them found geography sometimes easy and occasionally difficult to memorize and remember. Thus geography was viewed easy to memorize and remember.

### *Memorizing Science:*

This item indicates that students' answers were evenly distributed across the scale and 40.2% of them found science sometimes easy and occasionally difficult. Generally science was viewed occasionally difficult to memorize and remember its knowledge.

In summary students found history and geography easy to memorize and remember its information and knowledge, whilst they viewed science as more difficult than history and geography.

### 5. 3. 30 Students' View towards their History Teacher's Knowledge

Students were asked to indicate how much of an expert they considered their history teacher to be in his knowledge of history (question 15, page 168).

Table 21: Students' Feeling towards Their History Teacher's Knowledge: Frequencies and Percentages (%)

Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
13 (3.8)	36 (10.4)	78 (22.5)	136 (39.3)	83 (24.0)	4	5

It may be seen from the above table that there was a wide dispersion of scores through the scale but tending towards the positive end of it: 39.3% of students indicated that their teacher was generally knowledgeable whilst a few of them believed that he had no or a little knowledge or they saw him as unproficient. This indicates that students generally had a strong positive attitude towards their history teacher in relation to his knowledge and they considered him very knowledgeable. This answers question 15.

### 5. 3 . 31 Students' Liking of Their History Teacher

Students were asked to indicate how much they like their history teacher, in answer to question 16, page 168.

Table 22 : Students' Liking of Their History Teacher :Frequencies and Percentages (%)

Hardly at all	A little	Reasonably	Alot	Very much	Median	Missing
4 (1.1)	4 (1.1)	55 (15.7)	140 (40.0)	147 (42.0)	4	1

Regarding the students' respect for or liking of their history teacher, it can be seen that the majority of them, combining very much (42.0%) and a lot (40.0%), liked him very much, whereas a very small percentage of them reported that they did not like him. Generally the students' answers were clustered around the two positive categories.

### **5. 3. 32 Summary of Survey Findings**

The following results are drawn from the survey:

1. About 54.0% of the survey group came from schools in villages and 46.0% of them came from schools in cities.
2. Half of students' fathers work in the governmental sectors and the high proportion of them chose the others category that means their fathers dead or retired from work.
3. The vast majority of students' mothers worked as housewives.
4. The majority of students spend one hour in studying history at home.
5. The majority of students rated themselves as having 'very good' or 'excellent' level in history.
6. The majority of students in the whole survey preferred the style 'teacher talks/lectures' and 'class discussion led by teacher' a lot.
7. Some of the survey group preferred the styles 'making generalizations', 'students present work to the group' 'students listen to others' presentations', 'students make interpretations', 'students formulate hypothesis' and 'watch a video or listen to a tape and make notes' reasonably.
8. Only a minority of students in the whole sample preferred the style 'asking questions' very much.
9. Only a minority of them preferred the style 'inferring from given information' a lot.
10. Most of them liked the style 'drawing conclusions' very much.
11. About half of the survey respondents preferred the styles 'distinguishing between strong and weak arguments' and 'identifying the problem and deriving ways of investigation it' a lot.
12. There was abroad agreement between students in the survey that the styles 'teacher talks/lectures' and 'class discussion led by teacher' were used very frequently.
13. About 35.3% of the survey used the style 'making generalization reasonably.



14. Around 29.0% of them indicated that the styles 'students present work to the group' and 'students formulate hypothesis' were used a little in history.
15. Around 61.5% of the whole survey reported that the learning style 'watch a video or listen to a tape and make notes' have not been used hardly at all.
16. Around 33.1% of them indicated that the style 'discussion in small group' have not been used at all in history lessons.
17. Over half of the whole sample reported that the styles 'students derive material from many sources to work on a given problem investigation or topic' and 'students organize an investigation on a given topic or problem' were used rarely in history lessons.
18. Most of the respondents reported that the style 'students infer from given information' was used reasonably or more.
19. The majority of students in the survey enjoyed using different resources such as books, pictures and maps very much.
20. Over half of them enjoyed using the documents.
21. Only a minority of them enjoyed using the video.
22. Only a minority of them enjoyed using the TV.
23. Only a minority of them enjoyed using the transparencies.
24. Most of students in the sample have strong positive attitude towards their history teacher.
25. Nearly half of the whole survey enjoyed the history content curriculum a lot.
26. The majority of them would be interested in trying the style 'students work in pairs or small groups' a lot.
27. The minority of them would be interested in trying the style 'students prepare essays alone'.
28. Most of students in the survey would be interested in trying the style 'students prepare essays in groups' a lot.
29. The minority of them would like to try the style 'students make notes from books' a lot.

30. Most of them would like to try the style 'research on a topic/ project using a library' a lot or more.
31. Most of them would be interested in trying the style 'teacher dictates notes' very much.
32. The majority of students in the whole survey indicated that books and maps were used very frequently, and much more than other resources.
33. The majority of them considered history to be a very important subject in schools.
34. Most students in the survey agreed that all the reasons suggested regarding the importance of history were important or very important.
35. About 46.4% of them reported that history was easy.
36. Most of them reported that, compared to science and geography, history was easier to memorize and remember.
37. About half of the survey agreed that they would like to take history, geography and science at their higher education.
38. Only a minority of students indicated that their teacher was very knowledgeable.
39. A majority of them indicated that they respected their history teacher very much.

### **5. 3. 33 The Analysis of the open-ended Questions**

The SAQ included some open-ended questions at the end of each section and students were asked to express their opinion, to suggest and comment. Most students wrote their comments at the end of the questionnaire. Students in the survey group were asked to add their comments or suggestions about anything related to the learning styles, educational resources, history curriculum, history teacher and the importance of history. Their suggestions, comments and requests were general but demonstrated several common themes enabling frequencies to be calculated. The researcher grouped each response in one of several themes with the exception of a few students who made unique responses. Appendix 20 gives a representative sample of the open-ended question of SAQ.



The following issues were identified from students' responses and were presented in decreasing frequency of occurrence:

- The majority of students (232, 66.0%) in the survey stated an interest in following and applying different types of the learning styles in addition to the traditional method.
- Many students in the survey group wanted their teachers to use many different educational resources: 212 (60.0%) of them stated that they enjoyed using educational resources such as maps, transparencies, the video, the television, the audio cassette and field study.
- Over half (182 students, 51.%) of the survey respondents stated that it was important that the number of history sessions should be increased from one to two per week. They commented that one session a week did not allow them enough time to ask questions, to use different resources, to read additional books and participate actively in the learning and teaching process.
- Almost half (173, 49.0%) of the survey respondents indicated that history in particular and social sciences in general were very important in schools, therefore, more attention should be paid towards them.
- A little under half (156, 44.0%) the students in the survey asked to use different kinds of questions that encourage them to interpret, infer, deduce, evaluate and giving their opinion not just memorizing the information.
- Only one third (114, 32.0%) of students suggested that there was a need to provide historical material in the library that focused on different historical eras, especially within the Islamic field of history.
- Less than one quarter (85, 24.0%) of students suggested that there was a need to encourage them to prepare different kinds of assignments, for example writing short essays, working in groups to find out answers or solutions for their questions and preparing projects, not only answering some questions at the end of the lesson.



- A minority of the students (74, 21.0%) commented that history the textbook content in the first year of secondary school needed to be in more detail and to contain more information.
- A minority of students (48, 14.0%) asked that making a link between past events in the history textbook and the present situations or events as an example would help to guide them in the present and future.
- Six students suggested that putting questions at the end of each lessons in the textbook would help.
- Two students indicated that history teachers needs more preparation and training to deal with students of this stage.
- One student commented that the prescribed textbook of history in the first year of the secondary school needed to be better organized.
- One student suggested that, when the textbook of history curriculum was being writing, thought should be given to the age of students.
- A minority students in the experimental group expressed their enjoyment of using the inquiry method that had been offered to them during the first term.

In summary, it has been clear that students commented and suggested many different things, including demanding that their teachers use different types of learning styles, lots of educational resources, many questions and increasing the time of studying history from once a week to twice a week. Students of the experiment group indicated positive attitude towards the inquiry method.

#### **5. 4 The Analysis of the Modified Watson-Glazer Critical Thinking Appraisal (MWGCTA) in the Whole Survey**

Students in the whole survey were given a test in critical thinking, as mentioned in the previous chapter, to know to what extent they were proficient in different aspects of thinking. As mentioned in the previous chapter the MWGCTA comprised five sections which include: inference, recognition of assumptions, deduction, interpretation and evaluation of arguments. Each section contained 16

items or questions (see appendix 4). The research shows the frequencies and percentage of the correct responses in each section separately, with the numbering of items as appeared in the test. The results of the total score will be related to the percentile, as WGCTA recommended any user of this test.

#### 5. 4. 1 Inference

This exercise contained several statements of fact regarded as true. Each statement was followed by several possible inferences. Students were asked to put a cross on the answer sheet under the appropriate answer (see appendix 5).

**Table 23: Students' Answers on the MWGCTA  
(Inference): Frequencies and Percentages (%)**

Total Scores	Frequency of Students	Percentages
0	3	0.9
1	16	4.6
2	40	11.4
3	77	21.9
4	69	19.7
5	54	15.4
6	48	13.7
7	30	8.5
8	9	2.6
9	5	1.4
Total	351	100.0
Mean= 4.239		Stddev= 1.847

In relation to the section on inference items it can be seen that none of the students achieved the maximum score (16) that related to this section (table 23). Nearly 21.9% scored 3/16, and only 1.4% scored 9/16. The mean of students in the inference exercise was 4.2. This is the lowest mean of students' responses of this section. This may refer to the fact that the examples that included here seemed hard and each statement consisted of five choices whereas the rest of other exercises contained only two choices.

### 5. 4. 2 Recognition of Assumptions

This exercise was comprised of statements, each statement being followed by several assumptions. Students were asked to mark with a tick under YES or No on the answer sheet.

Table 24 : Students' Answers on the MWGCTA  
(Recognition of Assumptions): Frequencies and Percentages (%)

Total Scores	Frequency of Students	Percentages
2	1	0.3
4	8	2.3
5	30	8.5
6	38	10.8
7	66	18.8
8	74	21.1
9	61	17.4
10	41	11.7
11	18	5.1
12	13	3.7
14	1	.3
Total	351	100.0
Mean= 7.957		Stddev= 1.914

Concerning the recognition of assumptions table 24 indicates that none of students achieved the maximum score (16) on this exercise. Nearly 21.1% scored 8/16 and just one student scored 14/16. The mean was 7.9.

### 5. 4. 3 Deduction

This section contained statements followed by several suggested conclusions and students were asked to mark with a tick under YES or NO on the answer sheet.

Table 25 : Students' Answers on the MWGCTA (Deduction): Frequencies and Percentages

Total Scores	Frequency of Students	Percentages
2	1	0.3
3	1	0.3
4	8	2.3
5	20	5.7
6	43	12.3
7	65	18.5
8	61	17.4
9	75	21.4
10	38	10.8
11	25	7.1
12	10	2.8
13	4	1.1
Total	351	100.0
Mean= 8.091		Stddev= 1.938



With respect to deduction, none of students in the whole sample achieved the maximum score (16) that related to this exercise, but 21.4% of them scored 9/16, and four student scored 13/16. The mean was 8.1.

#### 5. 4. 4 Interpretation

This interpretation exercise consisted of a short paragraph followed by several suggested conclusions and students were asked to put a tick under YES or NO on the answer sheet.

Table 26 : Students' Answers on the MWGCTA  
(Interpretation): the Frequencies and Percentages

Total Scores	Frequency of Students	Percentages
1	1	0.3
2	1	0.3
4	12	3.4
5	26	7.4
6	59	16.8
7	60	17.1
8	60	17.1
9	67	19.1
10	30	8.5
11	24	6.8
12	7	2.0
13	3	.9
14	-	-
15	-	-
16	1	0.3
Total	351	100.0
Mean= 7.818		Stddev= 2.075

In relation to interpretation exercise (table 26) one student in the whole survey achieved the maximum score (16) that related to this exercise, and 19.1% scored 9/16.

#### 5.4.5 Evaluation of Arguments

This contained a set of questions, each of them followed by several arguments and students were asked to put a tick under STRONG or WEAK on the answer sheet.

Table 27: Students' Answers on the MWGCTA  
(Evaluation of Arguments): Frequencies and Percentages (%)

Total Scores	Frequency of Students	Percentages
2	1	0.3
4	3	0.9
5	5	1.4
6	18	5.1
7	31	8.8
8	53	15.1
9	51	14.5
10	50	14.2
11	52	14.8
12	42	12.0
13	35	10.0
14	6	1.7
15	4	1.1
16	-	-
Total	351	100.0
Mean= 9.749		Stddev= 2.290

Regarding students' ability to evaluate arguments table 27 indicates that none of the students in the whole survey achieved the maximum score (16) relating to this exercise, although 15.1% of them scored 8/16, six scored 14/16, and four scored 15/16.

#### 5. 4. 6 Frequencies of the Total Score of MWGCTA

Table 28: Students' Total Score in the MWGCTA:  
the Frequencies and Percentages (%)

Total score	Frequency of Students	Percentages
22	1	0.3
26	1	0.3
27	2	0.6
28	2	0.6
29	2	0.6
30	5	1.4
31	12	3.4
32	8	2.3
33	26	7.4
34	29	8.3
35	28	8.0
36	20	5.7
37	26	7.4
38	36	10.3
39	33	9.4
40	30	8.5
41	20	5.7
42	20	5.7
43	12	3.4
44	17	4.8
45	5	1.4
46	9	2.6
48	1	.3
49	2	.6
51	1	.3
52	3	.9
Total	351	100.0
Mean= 37.809		Stddev= 4.518

Table 28 shows that nearly 67.0% of students gained the score 20/80 - 52/80 that has been given to the whole test of the MWGCTA after combining their percentages. The rest of them scored less than 20. The mean of students' total score was 37.8. It can be seen that 25% of the students scored 34 or less on the 80 items, 50% of them scored 38 or less, and 75% of them scored 41 or less. Whilst the mean score of students in the first year of secondary school was 37.8, this compares unfavourably with the norms of WGCTA when conducted with grammar school pupils in Britain in which the mean score was 57.2. This means that students in Saudi Arabia achieved only moderately well in the MWGCTA. It is necessary to bear in mind the following points:

- There are cultural differences between Saudi students and British students.



- The researcher had modified the original version of WGCTA and made some alterations more appropriate to Saudi students.
- This is the first time students in Abha Educational Directorate have taken this kind of test according, to best of the researcher's knowledge.

In summary, students in the first year of the secondary schools were under the middle of achievement in the MWGCTA. This test profiles students' achievement of critical thinking skills, which answers question 20 of this study. Analysis of the data collection from the experiment study will be presented in the following sections.

## 5.5 The Experiment

One of the purposes of this study was to investigate the effect of the traditional and inquiry methods in students' attitudes towards history and their attainment. The experimental group was taught by the inquiry method and the control group was taught by the traditional method. The researcher will present the analysis of the experiment study as follows:

### 5.5.1 The Combination of the Two Control Groups

The researcher conducted the experiment study with three classes; group (b) was an experimental group and (z, h) were control groups. The researcher selected two control groups instead of one in the interest of reliability (Cohen and Manion, 1994) in dealing with human beings in the study. Each group whether the experimental or the control consisted of 31 students. After entering the data into the computer and discussing with some statistics experts, it was decided to combine the two control groups (z and h) if there were no significant differences between them. This would increase the number in the control group, make the statistical treatment easier and may give more reliable statistics. The results of the Mann-Whitney U test show that no significant differences were found between the two control groups at the time of the pre-test, post-test and postponed test individually in most of the variables that related to the SAQ. Further the t-test was applied to test the difference between the two control groups at the time of the pre-test, post-test and postponed test in MWGCTA and AT, and it can be seen that no significant differences were found between them. Table 29 displays their means and the significance.

Table 29 : The Results of the T-test of the MWGCA between the Two Control Groups at the Time of the Pre-test, Post-test and Postponed test

Group	Mean & (SD) pre	Mean & (SD) post	Mean & (SD) pp
(Control z)	36.71 (4.21)	39.21 (6.65)	40.29 (5.20)
(Control h)	35.71 (3.01)	40.83 (4.41)	39.16 (3.41)
p. of T-test	N.S	N.S	N.S

From the previous table it can be seen that the mean of group z was higher than the mean of h at the time of the pre-test but the difference between them was not significant. Differences between the two groups were not significant at the time of the post-test and postponed test in the MWGCTA.

To ascertain whether there were any significant differences between the two control groups, the researcher applied the t-test for independent samples between them at the time of pre-test, post-test and postponed test of the achievement test.

**Table 30 : The Results of the T-test of the achievement test between the Two Control Groups at the Time of the Pre-test, Post-test and Postponed test**

Group	Mean & (SD) pre	Mean & (SD) post	Mean & (SD) pp
(Control z)	44.06 (9.52)	66.19 (10.53)	65.09 (11.73)
(Control h)	40.09 (8.31)	68.16 (10.79)	65.70 (10.56)
p. of T-test	N.S	N.S	N.S

Table 30 indicates that no significant differences were found between the two groups in the pre-test, post-test and postponed test of achievement. In relation to the pre-test it can be seen that the mean of the group z was higher than the mean of group h, though this difference between them was not significant.

Regarding the t-test between the two control groups at the time of the post-test and the postponed test of achievement, no significant difference was found between the two control groups at the time of the post-test. The mean of group z was lower than the mean of group h but the difference between them was not statistically significant.

With regard to the postponed test the previous table shows that the two control groups had approximately the same means at the time of the postponed test, the difference between them was not statistically significant. This indicates that group z and group h were at the same level of achievement at the beginning of the experiment.



It is clear that no significant differences existed between the two control groups (z and h). Hence the researcher combined them to form one control group which contained 62 students. The experimental group remained at 31 students.

## **5. 5. 2 Descriptive Data from the Experiment**

### **5. 5. 2. 1 The Students' Attitude Questionnaire (SAQ)**

The following data are intended to test research hypotheses on pp 169-171. The SAQ was applied three times at the same time as the pre-test, post-test and postponed test with the experimental and control groups. Frequencies and percentages were used to give a description of students in the experimental and control groups. After that the Friedman and Mann-Whitney U tests were used to ascertain the significance of the differences between the experimental and control groups at each stage.

The researcher used the chi-square test for nominal data to ascertain the association or relationship which may be based on frequencies of observations in categories (James, 1989, p. 369). Since there were low frequencies in some of the cells of expected values (i.e. more than 20% of the cells had frequencies of 5 or less) the researcher could not rely on the chi-square test and it was not used. The researcher recoded the data, combining cells in order to overcome the difficulties of small cells (Siegel, 1956, p. 109). Siegel (1956) indicated that:

The  $\chi^2$  test requires that the expected frequencies in each cell should not be too small. When they are smaller than minimal, the test may not be properly or meaningfully used (p. 110)

The researcher tried to combine some of the cells, e.g. fathers' jobs, but they still came to less than 5 and the cross tabulations were not statistically significant anyway.

The limitations of the chi-square test were attenuated by using frequencies which explain themselves (Yeomans, 1974, p. 37), giving the frequencies and percentages of students' father's job, mother's job, major, grades and hours of studying

history at home. Frequencies enable patterns to be recognized and because of its economic representation of many values (Levin, 1981, p. 38).

The frequencies and percentages of the nominal data are presented as follows:

#### 5. 5. 2. 2 Students' Father's Job

Table 31 : Students' Father's Job : Frequencies and Percentages (%)

Group	Teacher	Employer	Salesman	Manual Worker	Business-man	Agriculture	Military	Doct	Others
(E)	3 (9.7%)	4 (12.9%)	3 (9.7%)	0	9 (29.0%)	0	9 (29.0%)	0	3 (9.7%)
(C)	4 (6.5%)	16 (25.8%)	5 (8.1%)	1 (1.6%)	16 (25.8%)	1 (1.6%)	11 (17.7%)	0	8 (12.9%)

In relation to students' father's job from the experimental group, table 31 indicates that half of students' fathers worked in the government sectors as teachers, employers and the military, whereas a minority of their fathers worked as salesmen. It can be noticed that a high proportion of students' fathers had permanent jobs in the government sector and nearly quarter of their fathers were businessmen, while none of their fathers worked as manual workers, farmers and doctors. With regards to the control group it can be seen that nearly half the students reported that their fathers worked in the government sectors as teachers, employers and in the military, while one quarter of students' fathers were businessmen; the lowest percentage was for those whose fathers worked in manual work, as salesman and in agriculture. Most students' fathers worked in the governmental sectors. There was, therefore, similarity between both the experimental and control groups in relation to fathers' jobs, and with the survey group (table 2).



### 5. 5. 2. 3 Students' Mother's Job

Table 32 : Students' Mother's Job: Frequencies and Percentages (%)

Group	Housewife	Teacher	Nurse	Other
Experimental	30 (96.8%)	1 (3.2%)	0	0
Control	60 (96.8%)	2 (3.2%)	0	0

Table 32 indicates that the majority of students' mothers were housewives and the minority of them were teachers. This indicates that most of the students' mothers stayed at home. The majority of students' mothers of the experimental and control groups (96.8%) were working as housewives whereas one student (3.2%) responded in the 'other' category. None of the students' mothers worked as teachers and nurses. This indicates that the highest proportion of students' mothers in the experimental group were housewives and no spread of occupations was noted here; therefore there was an agreement between the two groups and also the whole sample in relation to mothers' jobs which focused on being housewives as a profession. This indicates that the experimental and control groups were similar in respect to students' mothers jobs. Students' in the whole sample asserted that the majority of their mothers (96.0%) were housewives and the minority were teachers (table 3)

### 5. 5. 2. 4 Students' Desired Specialisation in School

Table 33 : Students' Desired Specialisation in School: Frequencies and Percentages (%)

Experimental Group		Control Group	
Major	Frequency	Major	Frequency
1 Islamic studies	3 (9.7)	1 Islamic studies	8 (12.9)
2 Education	3 (9.7)	2 Education	2 (3.3)
3 Science	11 (35.5)	3 Science	17 (27.4)
4 Art	4 (12.9)	4 Art	7 (11.3)
5 Human Sciences	1 (3.2)	1 Islamic studies & 2 Education	3 (4.8)
1 Islamic studies & 2 Education	2 (6.5)	1 Islamic studies & 3 Science	10 (16.1)
1 Islamic studies & 3 Science	3 (9.7)	1 Islamic studies & 4 Art	3 (4.8)
1 Islamic studies & 5 Human sciences	1 (3.2)	1 Islamic studies & 5 Human sciences	3 (4.8)
2 Education & 3 Science	2 (6.5)	2 Education & 3 Science	2 (3.2)
3 Science & 6 Languages	1 (3.2)	2 Education & 5 Human sciences	1 (1.6)
		3 Science & 4 Art	2 (3.2)
		3 Science & 5 Human sciences	2 (3.2)
		3 Science & 6 Languages	2 (3.2)
Total	31(100.0)	Total	62 (100.0)

Table 33 presents the frequencies for students' desired future specialisations.



It seems that most students did not intend to specialise in language. The greatest proportion of students in the experimental group intended to specialise in science; 12.9% reported that they would be interested in art; some of them responded that they would study science together with one from a range of other studies such as Islamic studies, education and languages; a small proportion indicated that they would be interested in human sciences; the same percentage would follow Islamic studies and education; and the same proportion would study science with languages. One can see that none of the respondents in the experimental group was interested in languages itself, as noted in the control group. The highest proportion of students in the control group reported that they would specialise in science and most of them reported that they were interested in science, accompanied by other subjects such as art, Islamic studies, education, human science and languages. The lowest proportion of students indicated that they would be interested in education and human science. Furthermore the human sciences by themselves were not chosen by any of the respondents. This may be attributed to the fact that students tended to choose those studies which would enable them simply to find jobs in the future; there was a surplus in the field of the human sciences. In addition, 51.3% of the survey group agreed that they would be interested in science (table 4). From this it can be seen that students in the experimental and control groups were, to some extent, similar in their interest to study science accompanied with one of the other specialisations, and none of them would be interested to study languages itself, as mentioned earlier. This finding again reflected the results of the survey.

#### 5. 5. 2. 5 Students' Grades in History

Table 34 : Students' Grades: Frequencies and Percentages (%)

Items	Poor	Acceptable	Good	Very good	Excellent
His (E)	0	1 (3.2%)	4 (12.9%)	15 (48.4%)	11 (35.5%)
(C)	1 (1.6%)	1 (1.6%)	2 (3.2%)	44 (71.0%)	14 (22.6%)
Geo (E)	0	0	4 (12.9)	17 (54.8)	10 (32.3)
(C)	0	1 (1.6)	4 (6.5)	43 (69.4)	14 (22.6)
Sci (E)	0	0	9 (29.0)	13 (41.9)	9 (29.0)
(C)	0	2 (3.2)	23 (37.1)	27 (43.5)	10 (16.1)

Table 34 indicates that the majority of students (71.0%) were very good at history whilst the number who were poor or acceptable in history was very small. This

indicates that students achieved well in history and that they may have had a positive attitude toward it and this agreed with students in the whole sample (table 6). No student in the experimental group received the grade level 'poor'. A high proportion of the experimental group achieved 'very good' and some 'excellent'. The lowest percentage was 'acceptable'. This shows that students achieved very well in history, and this may suggest that they had a positive attitude towards it. There was, therefore, similarity between the two groups in relation to their level of achievement in history. Further this agreed also with the survey group.

#### 5. 5. 2. 6 Studying History at Home

Table 35 : The Hours of Studying History at Home: Frequencies and Percentages (%)

Items	1 hour	2 hours	3 hours	4 hours	5 hours	6 hours	7 hours	8 hours	mode
His (E)	19 (61.3%)	7 (22.6%)	4 (12.9%)	0	1 (3.2%)	0	0	0	1
(C)	38 (61.3%)	19 (30.6%)	4 (6.5%)	1 (1.6%)	0	0	0	0	1
Geo (E)	21 (67.7)	8 (25.8)	1 (3.2)	1 (3.2)	0	0	0	0	1
(C)	37 (59.7)	18 (29.0)	7 (11.3)	0	0	0	0	0	1
Sci (E)	6 (19.4)	18 (58.1)	3 (9.7)	2 (6.5)	1 (3.2)	1 (3.2)	0	0	2
(C)	22 (35.5)	18 (29.0)	13 (21.0)	6 (9.7)	1 (1.6)	2 (3.2)	0	0	1

Table 35 reports the frequencies of students' study hours of history at home. It can be seen that none of the students spent more than four hours in studying history at home whereas most of them spent one hour and nearly a quarter spent two hours. The majority of students in the whole sample spent one hour in studying history at home. There was a general agreement between the experimental group and the whole survey in their studying of history at home (table 6). It can be seen that the proportion of students who spent one hour in studying history at home was high, and those who spent two hours was reasonably high, while the low proportion was of those who spent five hours. Students agreed with the control group and the whole sample with regard to spending one hour in studying history at home.



From the previous nominal data from the experimental and control groups it is clear that there is a spread of occupations of their fathers in that most students' fathers worked in the government sector and nearly a quarter of them worked as businessmen; half of their fathers worked in governmental sectors. Moreover the same high percentage of students' mothers in the experimental and control groups worked as housewives, this matched the results of the total survey. With regard to the desired specialisation it can be seen that there is an agreement between the students in the two groups in that most of them were interested in science and none of them wished to study languages alone.

The SAQ, MWGCTA and AT were applied to the experimental and control groups at the first year of the secondary school at the time of the pre-test, post-test and postponed test. Descriptive data is presented and discussed. This is followed by a treatment using inferential statistics.

Presented below are frequencies and percentages relating to the experimental and control groups at the time of the post-test. Frequencies and percentages of both groups at the time of the pre-test and postponed test are presented in the appendices for the following reasons:

1. This chapter is already large.
2. Few significant differences were found between the two groups at the time of the pre-test and at the time of the postponed test.
3. In the review of the teaching inquiry and traditional methods, it is necessary to investigate specifically differences or changes that may have occurred at the time of the post-test.

#### **5. 5. 2. 7 Frequencies and Percentages of the Experimental Group at the Time of the Pre-Test with relation to the Survey**

Appendix 12 contains frequencies and percentages of the experimental and control groups at the time of the pre-test, post-test and postponed test. Some general points regarding the patterns of scores on the pre-test should be noted. More specific tests for statistical significance are given and discussed in section 5.6 of this chapter.



Table 1 in Appendix 12 shows that the experimental and control groups responses were similar in all the items in their preference for different learning styles, except the items that related to the following styles: 'students ask questions', 'students infer from given information'. The experimental group preferred the style 'asking questions' more than the control group. In relation to the style 'inferring from given information' students of the control group preferred it more than the experimental group. Students of the experiment were similar to the survey group in their positive preference for these styles.

Table 2 in Appendix 12 indicates that students of the experimental and control group responses were broadly similar on following items: 'students make generalizations', 'students listen to others' presentations', 'students formulate hypotheses', 'watch a video or listen to a tape and make notes', 'students infer from given information', 'students draw conclusions', 'students distinguish between strong and weak arguments' and 'students identify the problem and devise ways of investigation it'. However some differences can be noted in the following styles: 'teacher talks/lectures', 'students ask questions', 'students present work to the group', 'students make interpretations', 'discussion in small group', 'class discussion led by teacher', 'students derive material from many sources to work on a given problem or topic', 'students organize an investigation on a given topic or problem'.

Table 3 in Appendix 12 shows that the experimental and control group responses were similar on all items of their enjoyment of different learning styles except items 2, 9, 11, 12, 13, 14, and 16.

Table 4 in Appendix 12 indicates that the experimental and control group responses were similar on all items of their enjoyment of different resources except item 1.

Table 5 in Appendix 12 shows that the experimental and control group responses were broadly similar on their description of their history teacher as helpful, co-operative, flexible, friendly, enthusiastic and amenable. However some differences can be noted when describing him as careful, responsive and giving strong direction.

Table 6 in Appendix 12 shows that the experimental and control group responses were similar in their enjoyment of history content.

From table 11 in Appendix 12 it can be seen that the experimental and control group responses were similar regarding their enjoyment of history, geography and science.

Table 10 in Appendix 12 indicates that students in the experimental and control group responses were similar on all items of trying different learning styles except the style 'students prepare essays alone' because the experimental group would be interested in trying it more than the control group.

Table 7 in Appendix 12 shows that the experimental and control group responses were similar on all items that related to using different resources in history except using 'documents', 'video' and maps. In using documents and video the experimental group used them less than the control group while in using maps the experimental group used them more than the control group.

Table 8 in Appendix 12 indicates that students' responses of the two groups were similar on the items of the importance of history, geography and science.

From table 9 in Appendix 12 it can be seen that the experimental and control group responses were similar on all items of the reasons that make history important in schools except 'to act on parental advice' because the control group viewed this reason more important than the experimental group.

Tables 12 and 13 in Appendix 12 indicates that the experimental and control group responses were similar on all items of the easiness of history, geography, science and their easiness to memorize and remember.

From table 14 in Appendix 12 it can be seen that the experimental and control group responses were similar on items that related to their intention to study history and science in higher education. However some differences can be noted on their intention to study geography because the experimental group would be interested to study it more than the control group.



From tables 15 and 16 in Appendix 12 it can be seen that the experimental and control group responses were similar to all items that related to their teachers' knowledge and their liking of him.

The results obtained from the experiment group can be seen to relate closely to data obtained from the survey. Some differences may be noted into the following items: 'students derive material from many sources to work on a given problem or topic', using the styles 'students make generalizations', 'students ask questions', 'discussion in small groups' students' enjoyment of the styles 'students infer from given information', 'students draw conclusions', using 'documents', 'video', 'TV', and 'audio cassette'. This reflects that students in the experimental group were similar to the survey group in most of the variables.

#### **5. 5. 2. 8 The Frequencies and Percentages of the Experimental Group at the Time of the Post-test**

With the sets of data obtained from the experiment, some general points regarding the patterns of scores on the post-test should be noted. More specific tests for statistical significance are given and discussed in section 5.6 of this chapter. Appendix 12 indicates the frequencies and percentages of the experimental and control groups after teaching the new programme that relied on the inquiry method.

##### ***Students' Preference of Different Learning Styles:***

From table 1 in Appendix 12, it can be seen that the experimental and control group responses were similar on their preference of most of the styles. Differences between responses were detected on the following items: 'teacher talks/lectures', in relation to this style students in the control group preferred it more than the experimental group and this may be due to using the inquiry method with the experimental group that made them change their mind or attitudes towards this style. The experimental group preferred the following styles: 'students present work to the groups' and 'discussion in small groups', more than the control group and this may be attributed to using them as one of the procedures of the inquiry method discussed in chapter 2. Further, students in the control group preferred the styles 'students derive



material from many sources to work on a given problem or topic', 'students identify the problem and devise ways of investigating it' more than the experimental group and this may reflect the necessity of the control group to know about different learning styles.

#### *Using Different Learning Styles:*

Table 2 in Appendix 12 indicates that the experimental and control group responses were similar on all items except 'students talks/lectures'; the control group used it more than the experimental group whom taught by the inquiry method. The following styles were used with the experimental group more than the control group 'students present work to the group', 'students listen to other's presentations', 'students formulate hypotheses', 'discussion in small groups', 'students derive material from many sources to work on a given problem or topic', 'students organize an investigation on a given topic or problem', 'students infer from given information', 'students draw conclusions' and 'students identify the problem and devise ways of investigating it'. This reflects that different procedures of the inquiry method were used with the experimental group.

#### *Students' Enjoyment of Different Learning Styles:*

From table 3 in Appendix 12, it can be seen that the experimental and control group responses were similar in their enjoyment of all styles. However some differences may be noted with regards to the styles 'teacher talks/lectures' and 'class discussion led by teacher': using the inquiry method with the experimental group made them enjoy these styles less. Further, students in the control group preferred the following styles more than the experimental group: 'students make generalizations', 'watch a video or listen to a tape and make notes', 'students infer from given information' and 'students distinguish between strong and weak arguments'. This preference may reflect students' interests and knowledge of these styles, even though the researcher explained each learning style to all of them during the administration of the questionnaire, or it might reflect the 'Hawthorn effect' that was discussed in the methodology chapter.

#### *Students' Enjoyment of Using Different Resources:*

Table 4 in Appendix 12 indicates that the experimental and control group responses were similar on all items of their enjoyment of books, documents, video, TV, audio cassette, pictures, maps and transparencies and they enjoyed them positively.

#### *Students' Description of Their History Teacher:*

From table 5 in Appendix 12, it can be seen that the experimental and control group responded similarly to all items on their description of their history teacher as careful, co-operative, flexible, responsive and amenable. However, some differences were noted on their description of their teacher, the control group viewed him as more helpful, friendly and enthusiastic than the experimental group. This may be due to the reduction of the teacher's role in the experimental group.

#### *Students' Enjoyment of the History Content:*

Table 6 in Appendix 12 indicates that the experimental and control groups enjoyed the history content very positively.

#### *Students' Enjoyment of History, Geography and Science:*

Table 7 in Appendix 12 indicates that the experimental and control groups responded similarly on their enjoyment of history, geography and science and they enjoyed them very positively.

#### *Trying Different Learning Styles:*

From table 8 in Appendix 12, it can be seen that the learning styles: 'students work in pairs or small groups', 'students prepare essays alone', 'students prepare essays in groups' and 'research a topic/ project using a library' were viewed differently by students of the experimental and control groups. This difference may be attributed to their unfamiliarity with them, being used to being taught by the traditional method all the time. The styles 'students make notes from books' and 'teachers dictates notes' were viewed positively by students of the two groups and this may be attributed to the



fact that students found it easy to deal with the prescribed text book and to receive information from their teacher directly.

#### *Using Different Resources:*

Table 9 in Appendix 12 shows that the experimental and control group responses were similar in using books very frequently. Students in the experimental group had the opportunity to work with different kinds of books and reference material when being taught by the inquiry method, whereas students in the control group worked with just one book, the prescribed textbook, and on using documents. Books, pictures, maps and transparencies were used with the experimental group more than the control group. Video, TV and audio cassette have never been used by either group, perhaps attributable to the nature of the history lessons in the first year of secondary school.

#### *The Importance of History, Geography and Science:*

From table 10 in Appendix 12, it can be seen that the experimental and control group shared the same view that history, geography and science were considered very important subjects in school.

#### *The Reasons for the Importance of History:*

Table 11 in Appendix 12 indicates that experimental and control group responses were broadly similar on all items. They viewed history as important in order to enable students (1) to get good jobs, (2) to get by in life, (3) for enjoyment, (4) to get qualifications, (5) to get social status, (6) to take part in the cultural life, (7) to act on parental advice and (8) to act on friends' advice.

#### *The Easiness of History, Geography and Science:*

Table 12 in Appendix 12 indicates that the experimental and control groups viewed history and geography as moderately easy. However science was viewed differently, students of the two groups found it more difficult than history and geography.



### *Students' Intention to Study History, Geography and Science in Higher Education:*

From table 13 in Appendix 12, it can be seen that students in the control group would be more interested in studying history than students in the experimental group. Most of the experimental and control groups would not be interested to study geography. Further most students of the experimental group intended to study science in their higher education while most of the control group did not intend to take it. So history and science are viewed positively and students intended to study them willingly and positively while geography have less positive responses from them.

### *The Easiness of Memorization and Remembrance of History, Geography and Science:*

Table 14 in Appendix 12 indicates that the experimental and control groups viewed history and geography as easy to memorize and remember while science was viewed as easy by the experimental group and more difficult by the control group.

### *Students' Views towards their History Teacher's Knowledge and Their Liking of Him:*

Tables 15 and 16 in Appendix 12 indicate that the experimental and control group responses were similar in their views of their history teacher's knowledge and their liking of him. They viewed him as knowledgeable and liked him very positively.

In summary, it can be seen that students in the experimental and control groups were similar in most of the items.

## **5. 5. 2. 9 The Frequencies and Percentages of the Experimental Group at the Time of the Postponed Test**

After a short period (more three weeks) the SAQ was applied as a postponed test to investigate students' retention. Some general points regarding the patterns of scores on the postponed test should be noted. More specific tests for statistical significance are given and discussed in section 5.6 of this chapter.

From table 1 in Appendix 12, it can be seen that the experimental and control groups responded similarly on all items of their preference of different learning styles except the styles: 'students make generalizations', 'discussion in small group', 'students infer from given information' and 'students draw conclusions'. Students of the control group preferred them more than the experimental group.

Table 2 in Appendix 12 indicates that the experimental and control group responses were similar on using different learning styles. However, differences between them may be noted on using the style 'teacher talks/lectures', it was used with the control group more frequently than the experimental group. The styles 'students make generalizations', 'students present work to the group', 'students listen to others presentations', 'students formulate hypotheses', 'discussion in small group', 'students derive material from many sources to work on a given problem or topic', 'students infer from given information', 'students draw conclusions', 'students distinguish between strong and weak argument' and 'students identify the problem and devise ways of investigating it' were used with the experimental group more frequently than the control group and this may be due to using the procedures of the inquiry method.

Table 3 in Appendix 12 indicates that the experimental and control groups responses were broadly similar on all items that related to their enjoyment of different learning styles except 'students make generalizations' and 'students identify the problem and devise ways of investigation it'; students in the control group enjoyed them more than students in the experimental group.

From table 4 in Appendix 12, it can be seen that the experimental and control groups responded similarly on all items that related to their enjoyment of using different resources. However differences between the two groups may be noted on items (2 and 5) they were used with the experimental more frequently than the control group.

Table 5 in Appendix 12 indicates that the experimental and control group responses were similar on all items that related to describing their history teacher. However differences between them may be noted on items 4, 5, 6, 7 and 8, the control group viewed their teacher as more flexible, responsive, giving strong direction, friendly and amenable than the experimental group. This may be due to the reduction of the teacher's role by using the inquiry method and the familiarity of students with the teacher's role in the traditional method.



Table 6 in Appendix 12 shows that the experimental group responses were different from those of the control group in relation to their enjoyment of history content. Students in the control group enjoyed it more positively than the experimental group.

From table 11 in Appendix 12 it can be seen that students in the experimental and control groups responses were broadly and positively similar in their enjoyment of history, geography and science.

Table 10 in Appendix 12 indicates that the experimental and control group responses were similar on all items that related to trying different learning styles except the styles: 'students prepare essays alone', 'students prepare essays in groups', 'students make notes from books' and 'teacher dictates notes'; the control group would be interested in trying them more than the experimental group.

Table 7 in Appendix 12 indicates that students in the experimental and control groups responded similarly on the items that related to using different resources in history lessons. Some differences between them may be noted on using 'documents', 'pictures' and 'transparencies', they were used with the experimental group more frequently than the control group.

From tables 8 and 9 in Appendix 12, it can be seen that the experimental and control groups had similar views of their responses that history, geography and science were very important in school. Further the two groups responses were broadly similar on all items that related to the reasons that make history important.

Table 12 in Appendix 12 indicates that the experimental and control groups viewed history and geography an easy subjects whereas they viewed science as only sometimes easy, but more often hard.

Table 14 in Appendix 12 indicates that have different views of studying history, geography and science in the higher education, some of them would be interested in studying them and others would not.



From tables 15 and 16 in Appendix 12, it can be seen that the experimental and control group responses were broadly similar on their view of describing their history teacher as knowledgeable and their positive liking of him.

## **5. 6 The Data Analysis of SAQ by Using the Nonparametric Tests (Friedman and Mann-Whitney)**

As the SAQ generated ordinal data, the appropriate test was the nonparametric Friedman two way analysis of variance to investigate the difference within groups under three or four conditions (Siegel, 1956, p. 166). This test was used with the ordinal data because it is considered to be a powerful nonparametric test (Siegel, 1956, p. 116) and it is equivalent to the analysis of variance used with interval data. Friedman two way analysis of variance was used to test differences within the experimental and control groups at the time of pre-test, post-test and postponed test. The Mann-Whitney U test was used to investigate the differences between the two groups at each stage. These tests were used to test differences in students' attitudes towards history, formulated in terms of the null hypothesis, viz: there will be no significant differences between the control group and the experimental group at the time of the pre-test, post-test and postponed test in terms of the students' attitudes to history. Tables include the median in brackets to indicate the state.

### **5. 6. 1 Students' Preference of Different Learning Styles**

The findings of the Friedman test and Mann-Whitney U test for each variable will be presented. Students were asked to indicate their preference of different learning styles. Table 36 displays students' responses to the 16 items on their preference of different learning styles. The null hypotheses is confirmed unless indicated or otherwise stated. (Main items are Mean ranks derived from Mann-Whitney test; median values are given in parentheses).

Table 36: The Mann-Whitney and Friedman tests of Students' Preference Different Learning Styles

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
1	Experiment	49.76 (4)	39.00 (4)	42.10 (4)	N.S
	Control	45.62 (4)	51.00 (4.5)	49.45 (4)	N.S
	p. of M-W	N.S	.03	N.S	
2	Experiment	43.44 (3)	40.95 (3)	45.77 (3)	N.S
	Control	48.06 (3)	48.61 (3)	47.16 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
3	Experiment	43.21 (3)	48.11 (4)	50.89 (4)	N.S
	Control	48.90 (4)	46.44 (4)	44.27 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
4	Experiment	42.13 (3)	44.92 (3)	44.76 (2)	N.S
	Control	47.27 (3)	48.04 (3)	48.12 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
5	Experiment	46.44 (3)	45.35 (3)	43.40 (3)	N.S
	Control	47.28 (3)	47.08 (3)	48.07 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
6	Experiment	42.58 (2)	43.23 (3)	47.63 (3)	N.S
	Control	49.21 (2)	48.89 (3)	46.69 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
7	Experiment	43.42 (3)	45.69 (3)	41.58 (3)	N.S
	Control	48.79 (3)	47.65 (3)	49.71 (3)	N.S
	p. of M-W	N.S	N.S	N.S	

8	Experiment	48.68 (3)	45.55 (4)	52.11 (4)	.06
	Control	46.16 (3)	47.73 (4)	44.44 (3.5)	N.S
	p. of M-W	N.S	N.S	N.S	
9	Experiment	43.79 (3)	40.55 (2)	42.00 (3)	N.S
	Control	48.60 (3)	50.23 (3)	48.79 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
10	Experiment	42.19 (4)	61.42 (4)	53.55 (4)	N.S
	Control	47.97 (4)	39.79 (4)	42.92 (4)	N.S
	p. of M-W	N.S	.0002	N.S	
11	Experiment	44.00 (3)	35.06 (2)	45.56 (3)	N.S
	Control	48.50 (3)	52.97 (3)	46.22 (3)	N.S
	p. of M-W	N.S	.001	N.S	
12	Experiment	44.48 (3)	39.73 (3)	41.45 (3)	N.S
	Control	48.26 (3)	50.64 (3)	49.72 (3)	N.S
	p. of M-W	N.S	.05	N.S	
13	Experiment	41.82 (4)	40.40 (3)	40.44 (3)	N.S
	Control	48.88 (4)	50.30 (3)	47.44 (3.5)	N.S
	p. of M-W	N.S	N.S	N.S	
14	Experiment	44.56 (4)	42.39 (3)	39.24 (3)	N.S
	Control	46.74 (4)	49.32 (4)	50.19 (3)	N.S
	p. of M-W	N.S	N.S	.05	
15	Experiment	42.76 (3)	38.27 (3)	45.60 (3)	N.S
	Control	49.12 (3.5)	51.36 (4)	46.21 (3)	N.S
	p. of M-W	N.S	.02	N.S	
16	Experiment	45.00 (3)	41.08 (3)	46.48 (3)	N.S
	Control	48.00 (3)	49.96 (3)	47.26 (3)	N.S
	p. of M-W	N.S	N.S	N.S	



## **5. 6. 2 Comments on Students' Preference Different Learning Styles**

### **Item 1: *Teacher talks/lectures:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the post-test, the difference between the experimental group and control group was significant ( $p < .05$ ), with the experimental group showing the lesser preference. Students of the experimental group liked this style less than the control group at the post- and postponed tests and both of them liked it positively.

### **Item 2: *Students make generalizations:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control. Differences between the experimental and control groups were not significant at any stage. Overall, students liked this style quite positively.

### **Item 3: *Students ask questions:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Overall, students liked this style very positively.

### **Item 4: *Students present work to the group:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Overall, students liked this style quite positively.

### **Item 5: *Students listen to others' presentations:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Overall, students preferred this style positively.

**Item 6: *Students make interpretations:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Overall, students preferred this style quite positively.

**Item 7: *Students formulate hypothesis:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Overall, students preferred this style quite positively.

**Item 8: *Watch a video or listen to a tape and make notes:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group although the increase in preference expressed by the experimental group at post-test and sustained at postponed test, approached significance ( $p=0.06$ ). Differences between the experimental and control groups were not significant at any stage. Overall, students preferred this style positively.

**Item 9: *Discussion in small groups:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of the experimental group preferred this style less positively than the control group.

**Item 10: *Class discussion led by teacher:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at pre- and postponed tests although the increase in preference expressed by the experimental group at post-test was significant ( $p<.01$ ). Students of the experimental group liked this style more than the control group at the post- and postponed tests and both of the two groups liked it positively.



Item 11: *Students derive material from many sources to work on a given problem investigation or topic:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at pre- and postponed tests although the increase in preference expressed by the control group at post-test was significant ( $p < .01$ ). Students of the experimental group liked this style less positively than the control group.

Item 12: *Students organize an investigation on a given topic or problem:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at pre- and postponed tests although the increase expressed by the control group at post-test approached significance ( $p = .05$ ). Students of the experimental group liked this style less positively than the control group.

Item 13: *Students infer from given information:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Overall, students preferred this style positively.

Item 14: *Students draw conclusions:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the postponed test, the difference between the experimental group and control group was significant ( $p = .05$ ), with the experimental group showing a lesser preference. Students preferred this style positively but the experimental group liked it less than the control group at the postponed test.

Item 15: *Students distinguish between strong and weak arguments:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at pre- and postponed tests although the increase



expressed by the control group at post-test was significant ( $p < .05$ ). Students of the experimental group liked this style less positively than the control group.

*Item 16: Students identify the problem and devise ways of investigating it:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Overall, students preferred this style positively.

In short it can be seen that students preferred all styles positively except: 'discussion in small group', 'students derive material from many sources to work on a given problem or topic', 'students organize an investigation on a given topic or problem' and 'students distinguish between strong and weak arguments' because students in the experimental group preferred them less positively than the control group. This may be due to the familiarity of students with the traditional method for the whole school life. Furthermore it can be noticed that there were no significant differences found within the experimental or control group across pre-, post- and postponed tests in all items except the style 'watch a video or listen to a tape and make notes', the difference within the experimental group with regards to this item approached significance. The null hypothesis about the differences between groups across the three tests was accepted or confirmed. There were no differences between the experimental and control groups at each stage in all items except the following styles: 'teacher talks/lectures', 'class discussion led by teacher', 'students derive material from many sources to work on a given problem or topic', 'students organize an investigation on a given topic or problem' and 'students distinguish between strong and weak arguments' because there were significant differences between them at the post-test, further, there was a significant difference found between them at the time of the postponed test in the style 'drawing conclusions'. The null hypotheses concerning the differences between the two groups at each stage was accepted in most of the items and rejected for the following items: 'teacher talks/lectures', 'class discussion led by teacher', 'students derive material from many sources to work on a given problem

or topic', 'students organize an investigation on a given topic or problem', 'students draw conclusions' and 'students distinguish between strong and weak arguments'. It can be seen that students of the experimental group liked the style 'teacher talks/lectures' less positively than the control group and this may be attributable to using the inquiry method. Students of the experimental group liked the style 'class discussion led by teacher more positively than the control group and this may be due to use of the inquiry method. Students of the experimental group liked the following styles 'students derive material from many sources to work on a given problem or topic', 'students organize an investigation on a given topic or problem', 'students draw conclusions' and 'students distinguish between strong and weak arguments' less positively than the control group and this is may be happened by chance.

### 5. 6. 3 Using Different Learning Styles in History Lessons

Table 37 displays students' responses to the items on using different learning styles as follows:

Table 37: The Mann-Whitney and Friedman tests of Using Different Learning Styles

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
1	Experiment	52.15 (5)	20.34 (2)	19.94 (1)	<.001
	Control	44.43 (4.5)	60.33 (5)	60.53 (5)	N.S
	p. of M-W	N.S	<.00	<.001	
2	Experiment	37.40 (3)	52.82 (4)	54.11 (4)	<.01
	Control	51.12 (3)	44.09 (3.5)	42.58 (3)	N.S
	p. of M-W	<.05	N.S	<.05	
3	Experiment	39.68 (3)	44.11 (3)	49.98 (3)	N.S
	Control	50.66 (4)	48.44 (4)	44.81 (3)	<.01
	p. of M-W	.05	N.S	N.S	
4	Experiment	39.18 (2)	63.34 (4)	59.00 (4)	<.001
	Control	50.22 (3)	37.04 (2)	40.15 (2)	<.01
	p. of M-W	.05	<.001	<.001	
5	Experiment	45.32 (3)	58.56 (4)	60.84 (4)	.01
	Control	47.84 (3)	41.22 (3)	40.08 (3)	N.S
	p. of M-W	N.S	<.001	<.001	



6	Experiment	37.47 (2)	52.44 (3)	53.05 (3)	N.S
	Control	51.09 (3)	44.28 (3)	43.17 (3)	N.S
	p. of M-W	<.01	N.S	N.S	
7	Experiment	40.02 (2.5)	61.58 (4)	60.37 (4)	<.001
	Control	48.94 (3)	39.71 (3)	40.31 (2)	N.S
	p. of M-W	N.S	.0002	.0005	
8	Experiment	46.24 (3)	48.10 (1)	49.65 (2)	.01
	Control	47.38 (3)	46.45 (1)	45.68 (1)	.000
	p. of M-W	N.S	N.S	N.S	
9	Experiment	36.66 (2)	69.97 (5)	68.39 (5)	.000
	Control	52.17 (3)	35.52 (2)	36.31 (2)	N.S
	p. of M-W	<.01	<.001	<.001	
10	Experiment	44.59 (4)	39.32 (4)	42.92 (3)	N.S
	Control	47.29 (4)	49.45 (4)	49.04 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
11	Experiment	39.29 (2)	61.42 (4)	57.24 (3)	.01
	Control	50.85 (3)	39.79 (2)	41.88 (2)	N.S
	p. of M-W	.04	<.001	<.01	
12	Experiment	38.08 (3)	55.40 (3)	53.73 (3)	N.S
	Control	50.09 (3)	42.19 (2)	43.73 (2)	.06
	p. of M-W	.03	.02	N.S	
13	Experiment	41.10 (3)	53.76 (4)	54.23 (4)	N.S
	Control	49.11 (3)	42.81 (3)	42.76 (3)	N.S
	p. of M-W	N.S	.05	.04	
14	Experiment	39.82 (3)	53.27 (4)	56.40 (4)	.02
	Control	49.19 (4)	43.86 (3.5)	42.30 (3)	.007
	p. of M-W	N.S	N.S	.01	
15	Experiment	45.00 (3)	40.76 (3)	47.48 (3)	N.S
	Control	48.00 (3)	50.12 (3)	46.76 (3)	.04
	p. of M-W	N.S	N.S	N.S	
16	Experiment	38.87 (2)	50.84 (3)	55.05 (3)	.03
	Control	51.06 (3)	45.08 (3)	42.98 (3)	N.S
	p. of M-W	.03	N.S	.03	



#### **5. 6. 4 Comments on Using Different Learning Styles**

##### **Item 1: *Teacher talks/lectures:***

Differences across pre-, post- and postponed tests were significant ( $p<.01$ ) for the experimental group but they were not significant for the control group. However the increase in perception of use expressed by the control group at post-test and sustained at postponed test was significant ( $p<.01$ ). This style was used with the experimental group (i.e. those taught by the inquiry method) less frequently than the control group .

##### **Item 2: *Students make generalizations:***

Differences across pre-, post- and postponed tests were significant ( $p<.01$ ) for the experimental group but they were not significant for the control group. However the increase in using expressed by the control group at pre-test was significant ( $p<.01$ ). At the time of the postponed test, the difference between the experimental and control groups was significant ( $p<.05$ ), with the experimental group showing the greater use of it. This style was used more frequently with the experimental group than the control group at the post- and postponed tests.

##### **Item 3: *Students ask questions:***

Differences across pre-, post- and postponed tests were significant ( $p<.01$ ) for the control group but they were not significant for the experimental group. At the time of the pre-test, the difference between the experimental and control groups was significant ( $p=.05$ ), with the control group showing greater use. This style was used less frequently with the experimental group than the control group at the post- and postponed test.

##### **Item 4: *Students present work to the group:***

Differences across pre-, post- and postponed tests were significant for either experimental or control group ( $p<.01$ ). At the time of the pre-test, the difference between the experimental group and control group was significant ( $p=.05$ ), however the increase in use expressed by the experimental group at post-test and sustained at

postponed test was significant ( $p < .01$ ). This style was used with the experimental group more frequently than the control group.

*Item 5: Students listen to others' presentations:*

Differences across pre-, post- and postponed tests were significant ( $p = .01$ ) for the experimental group but they were not significant for the control group. At the time of the post- and postponed tests, the difference between the experimental group and control group was significant ( $p < .01$ ), with the experimental group showing the greater use. This style was used with the experimental group more frequently than the control group.

*Item 6: Students make interpretations:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the pre-test, the difference between the experimental group and control group was significant ( $p = .01$ ). This style was used more frequently with the experimental group than the control group at the post- and postponed test.

*Item 7: Students formulate hypothesis:*

Differences across pre-, post- and postponed tests were significant ( $p < .01$ ) for the experimental group but they were not significant for the control group. At the time of the post- and postponed tests, the difference between the experimental group and control group was significant ( $p < .01$ ), with the experimental group showing the greater use. Overall, this style was used with the experimental group more frequently than the control group.

*Item 8: Watch a video or listen to a tape and make notes:*

Differences across pre-, post- and postponed tests were significant for the experimental and control group ( $p = .01$ ,  $p < .01$  respectively). Differences between the experimental group and control group were not significant at any stage. Overall, this style was not used frequently with either experimental or control group.



Item 9: *Discussion in small groups:*

Differences across pre-, post- and postponed tests were significant ( $p < .01$ ) for the experimental group but they were not significant for the control group although the increase in use expressed by the control group at pre-test was significant ( $p < .01$ ). Differences between the experimental group and control group were significant at the time of post- and postponed tests ( $p < .01$ ), with the experimental group showing the greater use. This style was used with the experimental group much more frequently than the with control group.

Item 10: *Class discussion led by teacher:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Overall, this style was used with the control group more frequently than with the experimental group.

Item 11: *Students derive material from many sources to work on a given problem investigation or topic:*

Differences across pre-, post- and postponed tests were significant ( $p = .01$ ) for the experimental group but they were not significant for the control group. At the time of the pre-test, the difference between the experimental and control group was significant ( $p < .05$ ), further at the time of post- and postponed tests the differences between the two groups were significant ( $p < .01$ ), with the experimental group showing the greater use. This style was used with the experimental group more frequently than with the control group.

Item 12: *Students organize an investigation on a given topic or problem:*

Differences across pre-, post- and postponed tests were not significant for the experimental group although the differences approached significance for the control group ( $p = 0.06$ ). At the time of the pre-test, difference between the experimental and control groups was significant ( $p < .05$ ), with the control group showing the greater use. Further at the time of the post-test, the differences between the experimental and control groups was significant ( $p < .05$ ), with the experimental group showing the



greater use although the increase in use expressed by the experimental group at postponed test was not significant. Overall, this style was used with the experimental group more frequently than with the control group.

Item 13: *Students infer from given information:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the post- and postponed tests, the differences between the experimental group and control group were significant ( $p=.05$ ,  $p<.05$  respectively), with the experimental group showing the greater use. Overall, this style was used with the experimental group more frequently than with the control group.

Item 14: *Students draw conclusions:*

Differences across pre-, post- and postponed tests were significant for the experimental and the control group ( $p<.05$ ,  $p<.01$  respectively). At the time of the postponed test, the difference between the experimental group and control group was significant ( $p=.01$ ), with the experimental group showing the greater use. This style was used with the experimental group more frequently than with the control group.

Item 15: *Students distinguish between strong and weak arguments:*

Differences across pre-, post- and postponed tests were significant ( $p<.05$ ) for the control group but they were not significant for the experimental group. Differences between the experimental group and control group were not significant at any stage. This style was used quite frequently with both experimental and control groups.

Item 16: *Students identify the problem and devise ways of investigation it:*

Differences across pre-, post- and postponed tests were significant ( $p<.05$ ) for the experimental group but they were not significant for the control group. At the time of the pre-test, the difference between the experimental group and control group was significant ( $p<.05$ ), with the control group showing the greater use although the increase in use expressed by the experimental group at post-test was not significant

but it was significant at postponed test ( $p < .05$ ). This style was used with the experimental group more frequently than with the control group.

In short, all styles were used with the experimental group more frequently than with the control group apart from 'teacher talks/lectures' and 'class discussion led by teacher' which were used with the control group more than with the experimental group. The styles 'students present work to the group' and 'students distinguish between strong and weak arguments' were used quite frequently with both groups, whereas the style 'watch a video or listen to a tape and make notes' has not been used frequently. It can be seen that there were significant differences within the experimental or control group at the time of the three tests and between the two groups at each stage for most of the items. The null hypotheses was rejected to some extent, but confirmed regarding the style 'class discussion led by teacher' because there were no significant differences within the two groups across the three tests and at each stage, and with the styles 'students make interpretations' and 'students infer from given information' because the differences were not significant within the two groups across the three conditions.

#### **5. 6. 5 Students' Enjoyment of Different Learning Styles in History Lessons**

Table 38 shows students' responses to the items on their enjoyment of different learning styles.

Table 38: The Mann-Whitney and Friedman tests of Students' Enjoyment of Different Learning Styles

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed Mean Rank (median)	p. of Friedman
1	Experiment	42.74 (4)	40.56 (4)	44.37 (5)	N.S
	Control	49.13 (5)	50.22 (5)	48.31 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
2	Experiment	39.37 (3)	40.69 (3)	41.50 (3)	N.S
	Control	50.81 (4)	50.15 (3)	49.75 (3)	N.S
	p. of M-W	.04	N.S	N.S	
3	Experiment	42.94 (3)	44.97 (4)	47.00 (4)	N.S
	Control	49.03 (4)	45.78 (4)	47.00 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
4	Experiment	41.45 (3)	49.34 (3)	45.69 (3)	N.S
	Control	49.77 (3)	45.06 (3)	46.16 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
5	Experiment	46.73 (3)	50.37 (4)	50.32 (3)	N.S
	Control	46.39 (3)	42.94 (3)	44.65 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
6	Experiment	39.94 (3)	46.24 (3)	51.45 (4)	N.S
	Control	49.13 (3)	47.38 (3)	44.77 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
7	Experiment	45.10 (3)	44.07 (3)	47.97 (3)	N.S
	Control	47.75 (3)	44.71 (3)	46.52 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
8	Experiment	47.61 (4)	48.68 (3)	47.47 (4)	N.S
	Control	46.69 (3.5)	46.16 (4)	46.77 (3.5)	N.S
	p. of M-W	N.S	N.S	N.S	
9	Experiment	41.66 (3)	45.34 (3)	46.71 (3)	N.S
	Control	49.67 (3)	47.83 (3)	47.15 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
10	Experiment	41.79 (4)	44.40 (4)	49.90 (4)	N.S
	Control	49.60 (4)	47.57 (4)	45.55 (3.5)	N.S
	p. of M-W	N.S	N.S	N.S	
11	Experiment	39.40 (2)	50.06 (3)	48.03 (3)	N.S
	Control	50.11 (3)	45.47 (3)	46.48 (3)	N.S



	p. of M-W	.05	N.S	N.S	
12	Experiment	38.31 (2)	38.82 (3)	40.32 (2)	N.S
	Control	51.35 (3)	49.71 (3)	50.34 (3)	N.S
	p. of M-W	.02	.05	N.S	
13	Experiment	34.98 (3)	37.69 (3)	43.68 (3)	N.S
	Control	53.01 (4)	50.98 (4)	47.93 (3)	.001
	p. of M-W	.001	.01	N.S	
14	Experiment	37.13 (3)	42.93 (3)	40.25 (3)	N.S
	Control	51.26 (4)	46.78 (4)	48.83 (3)	.01
	p. of M-W	.01	N.S	N.S	
15	Experiment	43.18 (3)	39.32 (3)	45.60 (3)	N.S
	Control	48.91 (3)	50.84 (4)	47.70 (3)	N.S
	p. of M-W	N.S	.04	N.S	
16	Experiment	35.66 (2)	42.82 (3)	46.87 (3)	N.S
	Control	52.67 (3)	49.09 (3)	47.06 (4)	N.S
	p. of M-W	.003	N.S	N.S	

### 5. 6. 6 Comments on Students' Enjoyment of Different Learning Styles

#### Item 1: *Teacher talks/lectures:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of the experimental group enjoyed this style less positively than those of the control group.

#### Item 2: *Students make generalizations:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the pre-test, the difference between the experimental and control groups was significant ( $p < .05$ ), with the experimental group showing the lesser enjoyment at the pre-, post- and postponed tests. Differences between the two groups at post- and postponed tests were not significant. Students of the experimental group enjoyed this style less positively than those of the control group although this style was used with the experimental group more frequently than the control group. This may have occurred by chance.

Item 3: *Students ask questions:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of both experimental and control groups enjoyed this style very positively.

Item 4: *Students present work to the group:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of both experimental and control groups enjoyed this style quite positively.

Item 5: *Students listen to others' presentations:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of the experimental group enjoyed this style more positively than the control group.

Item 6: *Students make interpretations:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of both experimental and control groups enjoyed this style positively.

Item 7: *Students formulate hypothesis:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of both experimental and control groups enjoyed this style positively.

Item 8: *Watch a video or listen to a tape and make notes:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and



control groups were not significant at any stage. Students of both experimental and control groups enjoyed this style very positively.

Item 9: *Discussion in small groups:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of both experimental and control groups enjoyed this style positively.

Item 10: *Class discussion led by teacher:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental and control groups were not significant at any stage. Students of the experimental group and control group enjoyed this style positively.

Item 11: *Students derive material from many sources to work on a given problem investigation or topic:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the pre-test, the difference between the experimental group and control group was significant ( $p=.05$ ), with the control group showing the greater enjoyment although the increase in enjoyment expressed by the experimental group at post- and postponed tests was not significant. Students of the experimental group enjoyed this style more positively than those of the control group.

Item 12: *Students organize an investigation on a given topic or problem:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the pre- and post-tests, the differences between the experimental group and control group were significant ( $p<.05$ ,  $p=.05$  respectively), with the control group showing the greater enjoyment. Students of the experimental group enjoyed this style less positively than those of the control group.



Item 13: *Students infer from given information:*

Differences across pre-, post- and postponed tests were significant ( $p < .01$ ) for control group but they were not significant for the experimental group. At the time of the pre- and post-tests, the differences between the experimental and control groups were significant ( $p < .01$ ,  $p = .01$  respectively), with the control group showing the greater enjoyment. Students of the experimental group enjoyed this style less positively than the control group.

Item 14: *Students draw conclusions:*

Differences across pre-, post- and postponed tests were significant ( $p = .01$ ) for control group but they were not significant for the experimental group. At the time of the pre-test, the difference between the experimental and control groups was significant ( $p = .01$ ), with the control group showing the greater enjoyment. Overall, students of both experimental and control groups enjoyed this style positively.

Item 15: *Students distinguish between strong and weak arguments:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the post-test, the difference between the experimental and control group was significant ( $p < .05$ ), with the control group showing the greater enjoyment. Students of the experimental group enjoyed this style less positively than the control group.

Item 16: *Students identify the problem and devise ways of investigating it:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the pre-test, the difference between the experimental and control groups was significant ( $p < .01$ ), with the control group showing the greater enjoyment. overall, students of both experimental and control groups enjoyed this style positively.

In short, students enjoyed all learning styles positively except: 'teacher talks/lectures', 'students make generalizations', 'students infer from given information', 'students distinguish between strong and weak arguments' because students in the control group enjoyed them more positively than those in the experimental group.

Students in the experimental group enjoyed the styles 'students listen to others presentations', 'students formulate hypotheses' and 'discussion in small groups' more positively than the control group. This may be attributed to the fact that students of the experimental group enjoyed the styles that related to the inquiry method and they had new experiences during teaching the new programme. In addition this may have depended on students' interests and knowledge in their enjoyment of different learning styles. With regards to the null hypotheses, it can be noticed that there were no significant differences found within the experimental or control group at the time of the pre-, post- and postponed tests for all items. The null hypotheses was accepted for all items except 'students infer from given information' and 'students draw conclusions' because there were significant differences found within the control group across the three tests. Furthermore there were no significant differences found between the two groups at each stage for all items except the following styles: 'students make generalizations', 'students derive material from many sources to work on a given problem or topic', 'students organize an investigation to work on a given topic or problem', 'students infer from given information', 'students draw conclusions' and 'students distinguish between strong and weak arguments' because there were a significant differences found between the experimental and control groups at the pre- and post-tests. The null hypotheses was rejected for these items and accepted or confirmed for the rest.

#### **5. 6. 7 Students' Enjoyment of Different Resources**

Table 39 displays students' responses to the items on their enjoyment of using different resources.



**Table 39: The Mann-Whitney and Friedman tests of Students' Enjoyment of Using Different Resources**

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean rank (median)	p. of Friedman
1	Experiment	38.23 (3)	41.34 (4)	46.60 (4)	N.S
	Control	51.39 (4)	49.83 (4)	47.17 (4)	N.S
	p. of M-W	.02	N.S	N.S	
2	Experiment	43.00 (3)	44.95 (3)	47.73 (3)	N.S
	Control	48.28 (4)	48.02 (3)	46.64 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
3	Experiment	48.10 (4)	49.16 (4)	50.05 (4)	N.S
	Control	46.45 (3.5)	45.92 (4)	45.48 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
4	Experiment	41.10 (3)	48.06 (4)	51.24 (4)	.04
	Control	49.25 (4)	46.47 (4)	44.88 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
5	Experiment	44.53 (3)	46.92 (3)	55.18 (4)	N.S
	Control	48.23 (3)	47.04 (3)	42.91 (3)	N.S
	p. of M-W	N.S	N.S	.03	
6	Experiment	40.34 (3)	53.06 (4)	44.94 (4)	.004
	Control	49.63 (4)	43.97 (4)	48.03 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
7	Experiment	45.53 (4)	54.15 (5)	47.63 (4)	N.S
	Control	46.99 (4)	43.43 (4)	45.93 (4)	N.S
	p. of M-W	N.S	.05	N.S	
8	Experiment	50.84 (3)	49.61 (4)	48.61 (3)	N.S
	Control	45.08 (3)	44.92 (3)	46.19 (3)	N.S
	p. of M-W	N.S	N.S	N.S	

### 5. 6. 8 Comments on Students' Enjoyment of Using Different Resources

#### Item 1: *Books*:

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the pre-test, differences between the



experimental group and control group were significant ( $p < .05$ ), with control group showing the greater enjoyment. Overall, students of both experimental and control groups enjoyed books positively.

Item 2: *Documents*:

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups enjoyed documents positively.

Item 3: *Video*:

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups enjoyed using video positively.

Item 4: *Television*:

Differences across pre-, post- and postponed tests were significant ( $p < .05$ ) for experimental group but they were not significant for the control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups enjoyed using television positively.

Item 5: *Audio cassette*:

Differences across pre-, post- and postponed tests were not significant for either experimental or control group although the increase in enjoyment expressed by the experimental group at the postponed test was significant ( $p < .05$ ). Overall, students of both experimental and control groups enjoyed using audio cassette positively.

Item 6: *Pictures*:

Differences across pre-, post- and postponed tests were significant ( $p < .01$ ) for experimental but they were not significant for control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups enjoyed pictures positively.

Item 7: *Maps*:

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the post-test, difference between the experimental and control groups was significant ( $p=.05$ ). Overall, students of the experimental group enjoyed maps more positively than those of the control group.

Item 8: *Transparencies*:

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of the experimental group enjoyed transparencies more positively than those of the control group.

To sum up, it can be seen that students of both experimental and control groups enjoyed using different resources in history positively. With regard to the null hypothesis, it can be noticed that there were no significant differences within the experimental or control group across pre-, post- and postponed tests for all items. The null hypothesis was accepted except for items 'television' and 'pictures' for which there were significant differences found within the experimental group. The differences between the two groups were not significant at each stage for all items. The null hypothesis was accepted except for 'books', 'audio cassette' and 'maps' because there were significant differences found between the two groups at different stages. The null hypothesis was rejected for 'books', 'audio cassette' and 'maps'. This reflects students' needs to deal with different resources and their positive enjoyment of them.

### 5. 6. 9 Students' View of Their History Teacher

Table 40 shows students' responses to the items on their description of their history teacher.

Table 40: The Mann-Whitney and Friedman tests of Students' View of Their History Teacher

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
1	Experiment	44.66 (5)	37.53 (4)	41.35 (5)	N.S
	Control	47.43 (5)	51.73 (5)	49.82 (5)	N.S
	p. of M-W	N.S	.004	N.S	
2	Experiment	53.02 (5)	44.66 (5)	45.03 (5)	N.S
	Control	43.19 (4)	48.17 (5)	47.98 (5)	N.S
	p. of M-W	N.S	N.S	N.S	
3	Experiment	48.28 (5)	41.06 (5)	43.82 (5)	N.S
	Control	44.11 (5)	49.97 (5)	47.86 (5)	N.S
	p. of M-W	N.S	N.S	N.S	
4	Experiment	50.23 (4)	41.68 (4)	36.52 (3)	N.S
	Control	43.82 (4)	49.66 (4)	51.57 (4)	N.S
	p. of M-W	N.S	N.S	.007	
5	Experiment	52.98 (5)	43.00 (4)	39.66 (4)	N.S
	Control	43.20 (4)	48.28 (5)	50.67 (4)	N.S
	p. of M-W	N.S	N.S	.05	
6	Experiment	53.18 (5)	37.26 (3)	51.07 (4)	.01
	Control	43.19 (4)	51.87 (4)	38.85 (5)	N.S
	p. of M-W	N.S	.009	.02	
7	Experiment	50.47 (4)	38.18 (4)	35.98 (4)	N.S
	Control	44.48 (3)	50.73 (5)	51.84 (5)	.0006
	p. of M-W	N.S	.02	.003	
8	Experiment	46.00 (4)	38.60 (4)	44.43 (4)	N.S
	Control	47.50 (4)	49.64 (5)	47.05 (5)	N.S
	p. of M-W	N.S	.04	N.S	
9	Experiment	50.05 (4)	41.29 (3)	38.77 (3)	N.S
	Control	43.91 (3)	49.85 (4)	51.11 (4)	N.S
	p. of M-W	N.S	N.S	.03	



## **5. 6. 10 Comments on Students' View of Their Teacher**

### **Item 1: *Helpful:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the post-test, differences between the experimental group and control group were significant ( $p < .01$ ). Students of the experimental group viewed their teacher as less helpful than those of the control group. This may be explained by the students being used to finding everything prepared by the teacher in the traditional method, whereas students of the experimental group had to participate and provide answers and solutions by themselves. Therefore they considered their teacher less helpful.

### **Item 2: *Careful:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups viewed their history teacher as careful.

### **Item 3: *Co-operative:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups viewed their history teacher as co-operative.

### **Item 4: *Flexible:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group although the increase in description expressed by the control group at the postponed test was significant ( $p < .01$ ). Overall, students of the experimental group viewed their teacher as less flexible than those of the control group. This may be explained by the students not realizing that the nature of the inquiry method which depended to a much greater extent on their own effort.

**Item 5: *Responsive:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of postponed test, the difference between the experimental group and control group was significant ( $p=.05$ ). It can be concluded that the history teacher was more responsive from the control group's viewpoint than that of the experimental group. This is explain by the history teacher not answering his students' questions directly, but leading them to find out and deal with different books and resources, so they viewed him as less responsive.

**Item 6: *Giving strong direction:***

Differences across pre-, post- and postponed tests were significant ( $p=.01$ ) for the experimental group but they were not significant for the control group. Although the increase in direction expressed by the control group at the post-test was significant ( $p<.01$ ), the increase in direction expressed by the experimental group at the postponed test was significant ( $p<.05$ ). Students of the control group viewed their teacher giving them direction as more positive than those of the experimental group.

**Item 7: *Friendly:***

Differences across pre-, post- and postponed tests were significant ( $p<.01$ ) for the control group but they were not significant for the experimental group. At the time of post- and postponed tests, differences between the experimental group and control group were significant ( $p<.05$ ,  $p<.01$  respectively). Students of the control group described their history teacher as very friendly more than those of the experimental group. This is may have occurred by chance.

**Item 8: *Enthusiastic:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group although the increase in description expressed by the control group at the post-test was significant ( $p<.05$ ). Students of the control group described their teacher as very enthusiastic more than students of the experimental group. This is because when students of the experimental group found



their teacher letting them to look for answers and deal with different kinds of sources they viewed him less enthusiastic than the control group.

**Item 9: *Amenable*:**

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the postponed test, the difference between the experimental group and control group was significant ( $p < .05$ ). Students of the control group described their teacher as very amenable more than students of the experimental group. This may have happened by chance.

In short, it can be noticed that students of both experimental group and control group had a positive attitudes towards their history teacher but sometimes students of the control group seemed more positive than those of the experimental group, particularly regarding the following items: flexible, responsive, giving strong direction, friendly, enthusiastic and amenable. This may explained by the fact that when students of the experimental group noted that the role of their teacher was not as usual owing to the use of the inquiry method, they viewed him less positive than the control group. In addition the differences within the experimental or control group were not significant across pre-, post- and postponed tests for all items. The null hypothesis was accepted except with 'giving strong direction' because there were significant differences within the experimental group and with 'friendly' because there were significant differences within the control group, so the null hypothesis here was rejected. Differences between the two groups were significant at different stages, the null hypothesis was rejected for all items except 'careful' and 'co-operative' because the differences between the two groups were not significant at each stage, the null hypothesis was accepted or confirmed.

### **5. 6. 11 Students' Enjoyment of History Content**

Table 41 displays students' responses to the item on their enjoyment of history content.



**Table 41: The Mann-Whitney and Friedman tests of Students' Enjoyment of History Content**

Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
Experiment	43.87 (4)	39.69 (4)	37.89 (4)	N.S
Control	48.56 (4)	50.65 (4)	50.19 (4)	N.S
p. of M-W	N.S	.05	.02	

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of post- and postponed tests, differences between the experimental group and control group was significant ( $p=.05$ ,  $p<.05$  respectively) Overall, control group students enjoyed history content more positively than those of the experimental group. The null hypothesis was accepted as no significant differences were found between the experimental and control groups at the three conditions. In addition the null hypothesis was accepted as no significant differences were found between the two groups at the pre-test but it was rejected for the post- and postponed tests because the differences were found statistically significant.

#### **5. 6. 12 Students' Enjoyment of History, Geography and Science**

Students were asked to show the extent to which they enjoyed history, geography and science. Table 42 shows students' responses to these items.

**Table 42: The Mann-Whitney and Friedman tests of Students' Enjoyment of History, Geography and Science**

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
History	Experiment	39.84 (4)	43.76 (4)	40.63 (4)	N.S
	Control	50.58 (4)	48.62 (4)	50.19 (4)	N.S
	p. of M-W	.05	N.S	N.S	
Geography	Experiment	49.03 (4)	46.82 (4)	46.77 (4)	N.S
	Control	45.98 (4)	47.09 (4)	47.11 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
Science	Experiment	45.35 (3)	48.13 (4)	48.87 (4)	N.S
	Control	47.82 (4)	46.44 (4)	46.06 (4)	N.S
	p. of M-W	N.S	N.S	N.S	

*Students' enjoyment of history:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the pre-test, differences between the experimental and control groups were significant ( $p=.05$ ), with the experimental group showing the lesser enjoyment. Students of the experimental group enjoyed history less positively than those of the control group.

*Students' enjoyment of geography:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups enjoyed geography very positively.

*Students' enjoyment of science:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups enjoyed science positively.

Thus, students of both experimental and control groups viewed history, geography and science as very enjoyable subjects in school. The null hypothesis was accepted because there were no significant differences found between the experimental and control groups whether at the time of the three tests or at each stage.

### 5. 6. 13 Trying Different Learning Styles

Table 43 displays students' responses to items on trying different learning styles.

Table 43: The Mann-Whitney and Friedman tests of Trying Different Learning Styles

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
1	Experiment	40.52 (3)	43.66 (3)	40.50 (3)	N.S
	Control	49.54 (3)	48.67 (3)	50.25 (3)	.06
	p. of M-W	N.S	N.S	N.S	
2	Experiment	40.11 (3)	40.92 (2)	41.03 (2)	N.S
	Control	50.44 (3)	50.04 (3)	49.98 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
3	Experiment	40.24 (3)	39.83 (3)	43.13 (3)	N.S
	Control	47.54 (3)	49.73 (3)	48.94 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
4	Experiment	46.16 (4)	40.68 (3)	42.13 (3)	N.S
	Control	44.38 (3.5)	49.46 (4)	49.44 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
5	Experiment	47.45 (4)	42.07 (4)	40.69 (3)	.03
	Control	46.02 (4)	47.93 (3)	50.15 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
6	Experiment	45.35 (4)	44.39 (3)	42.98 (4)	N.S
	Control	47.08 (4)	48.31 (4)	49.01 (4)	N.S
	p. of M-W	N.S	N.S	N.S	

### 5. 6. 14 Comments on Trying Different Learning Styles

Item 1: *Students work in pairs or small groups:*

Differences across pre-, post- and postponed tests approached significance ( $p=0.06$ ) for control group and were not significant for the experimental group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups would be interested to try this style quite positively.

Item 2: *Students prepare essays alone:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups viewed this style less favourably.



**Item 3: *Students prepare essays in groups:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups had different views of trying this style, some of them viewed it quite positively and others viewed it less favourably.

**Item 4: *Students make note from books:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups would be interested to try this style positively.

**Item 5: *Research a topic/project using a library:***

Differences across pre-, post- and postponed tests were significant ( $p < .05$ ) for the experimental group but they were not significant for control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups would be interested to try this style positively.

**Item 6: *Teacher dictates notes:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups would try this style very positively.

In summary, students of both experimental and control groups would be interested to try different learning styles positively except item 'students prepare essays alone', because they viewed them as less favourable. This may reflect the difficulty students found in working by themselves, or else they did not know how to do it. Further they would be interested to try the style 'teacher dictates notes' very positively and this may also reflect students' dependence on their teacher to provide

everything about the lesson. The null hypothesis was accepted for most of the items but it was rejected only for the styles 'students work in pairs or small groups', the differences were found significant within the control group and this may have occurred by chance. Differences within the experimental group were significant in relation to the style 'research a topic/project using a library' and this may reflect the experience students in the experimental group had in this kind of learning style.

### 5. 6. 15 Using Different Resources

Students were asked to indicate how often the following resources have been used in history lessons. Table 44 shows their responses to the items on using different resources.

Table 44: The Mann-Whitney and Friedman tests of Using Different Resources

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
1	Experiment	45.74 (4)	57.89 (5)	51.06 (4)	.05
	Control	47.63 (4)	41.56 (4)	44.97 (4)	N.S
	p. of M-W	N.S	.002	N.S	
2	Experiment	35.23 (2)	47.13 (3)	57.00 (3)	N.S
	Control	52.89 (3)	46.94 (3)	42.00 (2)	.03
	p. of M-W	.002	N.S	.009	
3	Experiment	35.52 (2)	41.08 (1)	47.50 (2)	.06
	Control	52.74 (4)	49.96 (1)	46.75 (2.5)	.001
	p. of M-W	.003	N.S	N.S	
4	Experiment	37.26 (3)	40.87 (1)	46.23 (2)	.06
	Control	51.20 (3)	50.06 (1)	47.39 (2)	.008
	p. of M-W	.01	N.S	N.S	
5	Experiment	43.55 (2)	41.87 (1)	47.73 (2)	.04
	Control	48.73 (3)	48.85 (1)	46.64 (2)	.03
	p. of M-W	N.S	N.S	N.S	
6	Experiment	42.92 (3)	62.74 (4)	53.06 (4)	.006
	Control	49.04 (3)	39.13 (3)	43.97 (3)	N.S
	p. of M-W	N.S	.00	N.S	
7	Experiment	52.85 (5)	55.74 (4)	46.95 (4)	N.S
	Control	44.07 (4)	42.63 (3)	47.02 (4)	.08
	p. of M-W	N.S	.02	N.S	
8	Experiment	41.10 (3)	69.66 (5)	61.19 (4)	.000
	Control	49.95 (3)	35.67 (1)	39.90 (3)	.05
	p. of M-W	N.S	.00	.0002	



## 5. 6. 16 Comments on Using Different Resources

### Item 1: *Books*:

Differences across pre-, post- and postponed tests were significant ( $p < .05$ ) for the experimental group but they were not significant for the control group although the increase in the use of books expressed by the experimental group at the post-test was significant ( $p < .01$ ). Books were used with the experimental group much more frequently than with the control group. By books, students of the control group clearly meant the prescribed history textbook because they repeatedly informed the researcher during the administration of the questionnaire that they had used no other books except the history textbook. It was notable, therefore, that the experimental group used different kinds of books and references during the teaching of the new programme by the inquiry method.

### Item 2: *Documents*:

Differences across pre-, post- and postponed tests were significant ( $p < .05$ ) for the control group but they were not significant for experimental group. At the time of the post-test, differences between the experimental and control groups were significant ( $p < .01$ ), with the control group showing the greater use although the increase in the use of documents expressed by the experimental group at postponed test was significant ( $p < .01$ ). Overall, documents had been used quite frequently.

### Item 3: *Video*:

Differences across pre-, post- and postponed tests were significant for the control group ( $p < .01$ ) although the increase in the use of video expressed by the experimental group across all stages, approached significance ( $p = 0.06$ ). Pre-test differences between the experimental and control groups were significant ( $p < .01$ ), with the control group showing the greater use. Overall, video has not been used at all in history lessons or else only rarely.

### Item 4: *Television*:

Differences across pre-, post- and postponed tests were significant ( $p < .01$ ) for the control group although the increase in the use of television expressed by the



experimental group across all stages approached significance ( $p=0.06$ ). Pre-test differences between the experimental and control groups were significant ( $p=.01$ ), with the control group showing the greater use. Overall, television has not been used at all with the two groups or else only rarely.

Item 5: *Audio cassette*:

Differences across pre-, post- and postponed tests were significant for either experimental or control group ( $p<.05$ ). Differences between the experimental group and control group were not significant at any stage. Overall, audio cassette have not been used at all in history lessons or else only rarely.

Item 6: *Pictures*:

Differences across pre-, post- and postponed tests were significant ( $p<.01$ ) for the experimental group but not significant for control group, although the increase in use of pictures expressed by the experimental group at post-test was significant ( $p<.01$ ). Overall, pictures have been used more frequently with the experimental group than the control group.

Item 7: *Maps*:

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. At the time of the post-test, the difference between the experimental group and control group was significant ( $p<.05$ ), with the experimental group showing the greater use of maps. Overall, maps have been used more frequently with the experimental group than with the control group.

Item 8: *Transparencies*:

Differences across pre-, post- and postponed tests were significant ( $p<.01$ ) for the experimental group and approached significance ( $p=.05$ ) for the control group. At the time of post- and postponed tests, the differences between the experimental group and control group were significant ( $p<.01$ ), with the experimental group showing the greater use of transparencies. Overall, transparencies have been used very frequently with the experimental group compared with the control group.

In short, students of both experimental and control group were similar in the use of books and documents, although it is important to recognise that by 'using books', students of the control group meant the prescribed textbook, whereas students of the experimental group were introduced to different books, references and leaflets as mentioned previously. Further video, television and audio cassette were never used frequently, whereas pictures, maps and transparencies were used much more frequently with the experimental group than with the control group. This may be due to teaching the new programme that relied on the inquiry method and the necessity of students to make use of different books, references and resources to answer their questions or problems. Differences were found significant within the experimental and control groups in relation to using video, television, audio cassette and transparencies. Differences were found significant within the experimental group in relation to books, pictures and within the control group in relation to documents and maps. Differences were found significant between the two groups at different stages. The null hypothesis is largely rejected, but accepted for those items for which there were no significant differences within the experimental group in relation to using documents and maps, and within the control group in using books and pictures. Differences were significant between the experimental and control groups at different stages, the null hypothesis was rejected except with regard to using audio cassette because no significant differences were found between the two groups at each stage. It can be noticed that books, pictures, maps and transparencies were used more frequently with the experimental group than with the control group.

**5. 6. 17 The Importance of History, Geography and Science**

Students were asked to indicate how important these subjects are. Table 45 shows students' responses to the items on the importance of these subjects.

**Table 45: The Mann-Whitney and Friedman tests of the Importance of History**

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
History	Experiment	42.81 (4)	49.87 (5)	43.45 (4)	N.S
	Control	49.10 (5)	45.56 (4)	48.77 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
Geography	Experiment	49.10 (4)	50.06 (4)	48.59 (4)	N.S
	Control	45.95 (4)	45.47 (4)	46.02 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
Science	Experiment	45.45 (4)	45.10 (4)	48.21 (4)	N.S
	Control	47.77 (4)	47.95 (5)	46.40 (4)	N.S
	p. of M-W	N.S	N.S	N.S	

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups viewed history, geography and science as very important subjects in school. The null hypothesis was accepted.



5. 6. 18 The Reasons for the Importance of History

Students in the experiment groups were asked to indicate how much history seems to be important and how important it is. Table 46 shows students' responses to the items on the reasons that make history important.

Table 46: The Mann-Whitney and Friedman tests for the Reasons of the Importance of History

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
1	Experiment	46.66 (4)	40.32 (3)	44.18 (3)	N.S
	Control	47.17 (4)	50.34 (4)	48.41 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
2	Experiment	47.29 (4)	47.15 (4)	48.94 (4)	N.S
	Control	46.85 (4)	46.93 (4)	46.03 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
3	Experiment	46.71 (4)	49.03 (4)	52.47 (4)	N.S
	Control	47.15 (4)	45.98 (4)	44.27 (4)	.04
	p. of M-W	N.S	N.S	N.S	
4	Experiment	48.79 (4)	51.16 (4)	43.23 (4)	N.S
	Control	45.34 (4)	44.92 (4)	48.89 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
5	Experiment	46.87 (4)	48.87 (4)	41.26 (4)	N.S
	Control	47.06 (4)	46.06 (4)	49.87 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
6	Experiment	41.58 (4)	49.79 (4)	48.48 (4)	N.S
	Control	49.71 (4.5)	45.60 (4)	46.26 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
7	Experiment	41.90 (4)	46.65 (4)	47.79 (4)	N.S
	Control	49.55 (4)	47.18 (4)	46.60 (4)	N.S
	p. of M-W	N.S	N.S	N.S	
8	Experiment	43.50 (3)	45.24 (3)	46.82 (3)	N.S
	Control	48.75 (3)	47.88 (3)	47.09 (3)	N.S
	p. of M-W	N.S	N.S	N.S	

## **5. 6. 19 Comments on Reasons that Make History Important**

### **Item 1: *To get good jobs:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups viewed this reason as an important.

### **Item 2: *To get by in life:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups showed that this reason was important.

### **Item 3: *For enjoyment:***

Differences across pre-, post- and postponed tests were significant ( $p < .05$ ) for the control group, showing the lesser importance but they were not significant for experimental group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups viewed this reason as very important.

### **Item 4: *To gain qualifications:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups viewed this reason as very important.

### **Item 5: *To gain social status:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups viewed this reason as very important.

**Item 6: *To take part in the cultural life:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Students of both experimental and control groups agreed that this reason was very important.

**Item 7: *To act on parental advice:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Students of both experimental and control groups agreed that this reason was very important to make history important.

**Item 8: *To act on friends' advice:***

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Students of both experimental and control groups agreed that this reason was quite important.

In summary, students of both experimental and control groups viewed the following reasons: 'to get good job', 'to get by in life', 'for enjoyment', 'to gain qualifications', 'to gain social status', 'to take part in cultural life', 'to act on parental advice' and 'to act on friends' advice' important for history. This reflects that history may enable students to accomplish multiple purposes in their life. The null hypothesis was accepted for all items but it was rejected for the reason 'for enjoyment' due to the differences found within the control group.



## 5. 6. 20 The Easiness of History, Geography and Science

Table 47 displays students' answers to the items on the easiness of history, geography and science.

Table 47: The Mann-Whitney and Friedman tests of the Easiness of History, Geography and Science

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
History	Experiment	44.74 (3)	57.68 (3)	47.06 (2)	N.S
	Control	48.13 (3)	41.66 (2)	46.97 (3)	.001
	p. of M-W	N.S	.004	N.S	
Geography	Experiment	43.87 (3)	48.53 (3)	47.42 (3)	N.S
	Control	48.56 (3)	46.23 (3)	46.79 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
Science	Experiment	39.37 (3)	44.06 (3)	47.52 (3)	N.S
	Control	50.81 (4)	48.47 (3)	46.74 (3)	N.S
	p. of M-W	.04	N.S	N.S	

### *The Easiness of History:*

Differences across pre-, post- and postponed tests were significant ( $p < .01$ ) for the control group but they were not significant for the experimental group. The increase in response expressed by the experimental group and the decrease of the control group at the post-test resulted in a significant difference ( $p < .01$ ). Overall, history was viewed an easy subject from students' views of both experimental and control groups. the null hypothesis was accepted to some extent, but was rejected owing to the differences within the control group and between the experimental and control groups at the post-test.

### *The Easiness of Geography:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, geography was viewed as an easy subject from students' views of both experimental and control groups. The null hypothesis was accepted.

### *The Easiness of Science:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control groups. At the pre-test, differences between the experimental and control groups were significant ( $p < .05$ ), with the control group showing the greater easiness. Overall, science was viewed as harder than history and geography from students' views of both experimental and control groups. The null hypothesis was accepted except for the differences between the experimental and control groups with regard to science at the pre-test. This indicates that students of the control group viewed science as easier than the experimental group, even though most of the differences between both experimental and control groups were not significant at the pre-test.

### **5. 6. 21 The Easiness of Memorizing History, Geography and Science**

Students were asked also to express how easy they found memorizing history, geography and science. Table 48 displays students' answers to these items.

Table 48: The Mann-Whitney and Friedman tests of Memorization of History, Geography and Science

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank median)	Postponed test Mean Rank (median)	p. of Friedman
History	Experiment	44.03 (3)	53.06 (3)	42.95 (2)	N.S
	Control	48.48 (3)	43.97 (2)	49.02 (3)	.001
	p. of M-W	N.S	N.S	N.S	
Geography	Experiment	41.10 (3)	42.79 (2)	41.44 (3)	N.S
	Control	49.95 (3)	49 10 (3)	49.78 (3)	N.S
	p. of M-W	N.S	N.S	N.S	
Science	Experiment	47.81 (3)	34.58 (3)	45.66 (3)	.05
	Control	46.60 (3)	53.21 (3)	47.67 (3)	.04
	p. of M-W	N.S	.001	N.S	

#### *Memorization of History:*

Differences across pre-, post- and postponed tests were significant ( $p < .01$ ) for the control group because their mean decreased at the post-test and increased at the postponed test but differences were not significant for the experimental group. Differences between the experimental and control groups were not significant at any stage. Overall, history was considered an easy subject to memorize and remember. The null hypothesis was accepted but it was rejected owing to the differences within the control group.

#### *Memorization of Geography:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, geography was deemed an easy subject to memorize and remember. The null hypothesis was accepted or confirmed.

#### *Memorization of Science:*

Differences across pre-, post- and postponed tests were significant for either experimental or control group ( $p = .05$ ,  $p < .05$  respectively), the mean of the



experimental group decreased at the post-test and increased at the postponed test while the mean of the control group increased at the post-test and decreased at the postponed test but remained higher than the experimental group. At the post-test, the difference between the experimental and control groups was significant ( $p<.01$ ), with the control group showing the greater easiness. Overall, science was considered harder than history and geography to memorize and remember. The null hypothesis was rejected due to the differences found within the experimental or control group and between the two groups at the post-test. It was accepted for the differences found between the two groups at the post- and postponed tests.

To sum up, it has been clear that students of both experimental and control groups viewed history and geography as easy subjects but viewed science as harder.

### 5. 6. 22 Students' Intention to Study History, Geography and Science in Higher Education

Table 49 displays students' responses to the items on their intention to study history, geography and science in higher education.

Table 49: The Mann-Whitney and Friedman tests of Students' Intention to Study History, Geography and Science in Their Higher Education

Items	Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
History	Experiment	44.50	41.90	45.00	N.S
	Control	48.25	48.73	48.00	N.S
	p. of M-W	N.S	N.S	N.S	
Geography	Experiment	52.50	47.83	46.00	N.S
	Control	44.25	45.85	47.50	N.S
	p. of M-W	N.S	N.S	N.S	
Science	Experiment	49.50	52.00	46.00	N.S
	Control	45.75	44.50	47.50	N.S
	p. of M-W	N.S	N.S	N.S	

#### *Students' intention to study history:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups had different views of studying history in higher education in that

some of them would be interested to take it and others would not be at all interested to study it.

*Students' intention to study geography:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, most of the students in both experimental and control groups to some extent would not be interested in studying geography in their higher education, whilst a minority of them would study it.

*Students' intention to study science:*

Differences across pre-, post- and postponed tests were not significant for either experimental or control group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups had different views of studying science, some of them would be interested to study it whereas others would not be interested to study it at all. The null hypothesis was accepted.

**5. 6. 23 Students' View towards Their History Teacher's Knowledge and Their Respect of Him**

Students were asked to show how much they feel about their teacher as an expert and how much they like him (tables 50 and 51).

**Table 50: The Mann-Whitney and Friedman tests of History Teacher's Knowledge**

Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
Experiment	47.58 (4)	38.60 (4)	45.35 (4)	N.S
Control	46.71 (4)	51.20 (4)	47.82 (4)	N.S
p. of M-W	N.S	.01	N.S	



**Table 51: The Mann-Whitney and Friedman tests of the Students' Liking Their History teacher**

Group	Pre-test Mean Rank (median)	Post-test Mean Rank (median)	Postponed test Mean Rank (median)	p. of Friedman
Experiment	48.87 (4)	42.23 (4)	46.16 (5)	N.S
Control	46.06 (4)	49.39 (5)	47.42 (4.5)	.02
p. of m-w	N.S	N.S	N.S	

Differences across pre-, post- and postponed tests were not significant for either experimental or control groups. At the post-test, the difference between the experimental and control groups was significant ( $p=.01$ ), with the control group showing a positive attitude. Overall, students of both experimental and control groups have a broad agreement that their history teacher was very knowledgeable.

Differences across pre-, post- and postponed tests were significant ( $p<.05$ ) for the control group, showing slight increase at the post-test and slight decrease at the postponed test but differences were not significant for the experimental group. Differences between the experimental group and control group were not significant at any stage. Overall, students of both experimental and control groups liked and respected their history teacher very positively.

In summary, it can be seen that students of both experimental and control groups have positive attitudes towards history teacher. Furthermore, the null hypothesis that related to the teacher's knowledge was accepted because no differences were found whether within the experimental or the control group. The null hypothesis that related to the differences between the two groups at each stage was accepted at the time of the pre- and postponed tests but it was rejected with the post-test. The null hypothesis that related to students' liking was accepted for the experimental group but it was rejected due to the differences found within the control group and it was accepted for the two groups because no significant differences were found between them at each stage.



#### **5.6.24 Summary of the Findings**

- The results showed no significant differences in learning styles preferences over time for either the experimental and control groups, although item 8 approached significance (table 36).
- The results in table 37 showed significant differences between learning styles between the experimental group and the control group. The remainders were not significant.
- With regards to using the style 'students present work to the group' it can be seen that the differences across pre-, post- and postponed tests were significant either for the experimental or control group. The mean of the experimental group increased across post- and postponed tests while the mean of the control group decreased at the post-test and still lower than the mean of the experimental group at the postponed test. Differences between the experimental and control groups were significant at each stage. This style was used with the experimental group more frequently than the control group (table 37).
- There was a significant difference between students of the experimental and control groups at the time of the pre-test, post-test and postponed test in relation to using the style 'listening to others' presentations', the mean rank of the experimental group was higher than the mean rank of the control group at the time of the post-test and postponed test (table 37).
- No significant differences were found between the enjoyment of different learning styles for both the experimental group and the control group (table 38).
- With regards to students' description of their teacher it can be seen that the difference between the two groups was found significant at the time of the post-test, students of the control group described him as more helpful, friendly, enthusiastic and amenable than students of the experimental group (table 40).
- In relation to students' enjoyment of the history content, the difference between the two groups was significant at the time of the post-test and postponed test. Students

of the control group viewed it more favourably than students of the experimental group (table 41).

- In relation to using the maps, it has been clear that the difference between the two groups was statistically significant at the time of the post-test and this indicates that they have been used with the experimental group a reasonable amount or more than the control group. This indicates that the inquiry method enables students of the experimental group to deal with different resources (table 44).
- The difference between the experimental and control groups was found significant at the time of the post-test with regards to using books, pictures, maps and transparencies, further they were used more frequently with the experimental group than with the control group (table 44).
- Students of the control group viewed their history teacher as having more knowledge than the experimental group, the difference between them was found significant at the time of the post-test (table 50). This may be seen because when students of the experimental group have seen their teacher's role decreased or changed from the normal or usual role with which they were familiar, they viewed him as less knowledgeable than did the control group. In addition they were accustomed to receiving knowledge from their teacher directly because he talked throughout the class time, whereas by using the inquiry method the students had to spend more time and effort to find their own answers, information and solutions to their questions.

The researcher investigated correlation between sets of the ordinal variables in the SAQ in order to answer questions 18 and 19 as follows:

#### **5. 7. 1 The Correlation Coefficient between Students' Preference for Different Learning Styles and their Use in History**

Correlations between different variables at the time of the post-test, after teaching the new programme by using the inquiry method were calculated using Spearman rank correlation coefficient in order to answer the following question: Are



there any relationships between students' preferred learning styles and the incidence of their experience of these styles in teaching history?

Table 52: The Correlation Coefficient between Students' Preferred Learning Styles and Using these Styles in History of Both Experimental and Control Groups.

Learning Styles	Correlation Coefficient	Significance Level
1 Teacher talks lectures.	.3596	<.01
2 Students make generalizations.	.2963	<.01
3 Students ask questions.	.3719	<.01
4 Students present work to the group.	.1945	NS
5 Students listen to others' presentations.	.4025	<.01
6 Students make interpretations.	.3600	<.01
7 Students formulate hypotheses.	.1551	NS
8 Watch a video or listen to a tape and make notes.	.1283	NS
9 Discussion in small groups.	.0928	NS
10 Class discussion led by teacher.	.5041	.01
11 Students derive material from many sources to work on a given problem investigation or topic.	.0845	NS
12 Students organise an investigation on a given topic or problem.	.2032	NS
13 Students infer from given information.	.3529	<.01
14 Students draw conclusions.	.2479	<.05
15 Students distinguish between strong and weak arguments.	.4679	<.01
16 Students identify the problem and devise ways of investigating it.	.3289	<.01

NS = not significant.

Table 52 presents the correlations between the students' preferred learning styles and the use of these styles in history. This shows that there was a highly positive correlation between the following learning styles and their use in history: 'teacher talks/lectures', 'students make generalizations', 'students ask questions', 'students listen to others' presentations', 'students make interpretations', 'class discussion led by teacher', 'students infer from given information', 'students draw conclusions', 'students distinguish between strong and weak arguments' and 'students identify the problem and devise ways of investigating it'. Only six learning styles were not significant. It can be inferred that whenever one of these styles is used in history students may view



history positively. Moreover if students liked one of the learning styles they may to some extent tend to use it or enjoy it and the vice versa.

To ascertain if there was any correlation between students' preferred learning styles and their enjoyment of history the researcher calculated the Spearman rank correlation coefficient at the post-test.

Table 53: The Correlation Coefficient between Students' Preferred Learning Styles and their Enjoyment of History.

Learning Styles	Correlation Coefficient	Significance Level
1 Teacher talks/ lectures.	.5501	<.01
2 Students make generalizations.	.4208	<.01
3 Students ask questions.	.2903	<.01
4 Students present work to the group.	.3502	<.01
5 Students listen to others' presentations.	.4379	<.01
6 Students make interpretations.	.5004	<.01
7 Students formulate hypotheses.	.3433	<.01
8 Watch a video or listen to a tape and make notes.	.3870	<.01
9 Discussion in small groups.	.3848	<.01
10 Class discussion led by teacher.	.2703	<.01
11 Students derive material from many sources to work on a given problem investigation or topic.	.3021	<.01
12 Students organize an investigation on a given topic or problem.	.3618	<.01
13 Students infer from given information.	.4158	<.01
14 Students draw conclusions.	.3942	<.01
15 Students distinguish between strong and weak arguments.	.3367	<.01
16 Students identify the problem and devise ways of investigating it.	.3288	<.01

Table 53 indicates that there was a strong and positive relationship between students' preferred learning styles and their enjoyment of history. Therefore, students are more likely to enjoy history whatever their preference learning style.

Table 54: The Correlation Coefficient  
between Using of the Resources and Students' Enjoyment of them

Items	Correlation Coefficient	Significance
1 Using the books <i>with</i> students' enjoyment of them.	.0667	N.S
2 Using the documents <i>with</i> students' enjoyment of them.	.2446	<.01
3 Using the video <i>with</i> students' enjoyment of it.	.0623	N.S
4 Using the television <i>with</i> students' enjoyment of it.	.0470	N.S
5 Using the audio cassette <i>with</i> students' enjoyment of them.	.1654	N.S
6 Using pictures <i>with</i> students' enjoyment of them.	.2393	<.05
7 Using maps <i>with</i> students' enjoyment of them.	.4202	<.01
8 Using transparencies <i>with</i> students' enjoyment of them.	.2789	<.01

The researcher ascertained whether there was any relationship or association between the students' enjoyment of all the previous resources and their use in history lessons in the experimental and control groups, using the Spearman rank correlation. The only significant correlations found were between the following items:

Using documents with students' enjoyment of them ( $p < .01$ ).

Using pictures with students' enjoyment of them ( $p < .05$ ).

Using maps with students' enjoyment of them ( $p < .01$ ).

Using transparencies with students' enjoyment of them ( $p < .01$ ).

No significant correlations were found between the rest of items here. This supports the previous results about the non significant differences found between the



two groups in their enjoyment of using different resources at the time of the three tests as a whole.

In short this indicates that students had positive attitudes towards different learning styles and different resources wherever used and they enjoyed them, whenever used.

### **5. 8 Summary of the Findings of the Students' Attitude Questionnaire (SAQ)**

The results of the data analysis of the SAQ can be summarized thus:

1. Students in the experimental group changed their attitude a little bit to the negative end of the scale towards the style 'teacher talks/lectures' whereas students in the control group still preferred it positively. The median of the experimental group became less than the median of the control group at the time of the post-test and the number of students in the control group who preferred this style was higher than those in the experimental group. This may be due to using the inquiry method with the experimental group who liked its different procedures such as working in groups and dealing with different resources and references.
2. No significant difference was found between the two groups in their preference for different styles such as 'students make generalizations', 'students ask questions', 'students present work to the group'.
3. With regard to using the styles 'teacher talks/lectures' it was found that it was used more frequently with the control group than with the experimental group; the median of the experimental group decreased at the time of the post-test whilst the median of the control group was still high.
4. With regard to using the following styles: 'students present work to the group', 'students formulate hypotheses', 'discussion in small groups', 'students listen to others' presentations' and 'students derive material from many sources to work on a given problem investigation or topic' it can be seen that they were used more frequently with the experimental group than with the control group.

5. Students in the control group enjoyed using the style 'teacher talks/lectures', 'students make generalizations', 'students listen to others presentations', 'students infer from given information', 'students draw conclusions' and 'students organize an investigation on a given topic or problem' in history more than the experimental group;
6. The two groups agreed positively that their history teacher was helpful, careful, friendly, enthusiastic, amenable, flexible and gave them strong direction.
7. In using pictures and transparencies students in the experimental group indicated that they used them more frequently than students in the control group.
8. The two groups shared a broad agreement that history was very important in schools.
9. In relation to the whole sample it is clear that students liked the styles 'teacher talks/lectures', 'students ask questions', 'students make interpretations', 'students formulate hypothesis', 'watch a video or listen to a tape and make notes' very considerably.
10. Students in the whole survey agreed that using the style 'teacher talks/lectures' in history was used very frequently.
11. Students in the whole sample indicated that the following styles had never been used in history, 'students formulate hypotheses', 'watch a video or listen to a tape and make notes', 'discussion in small group', 'students derive material from many sources to work on a given problem, investigation or a topic', 'students organize an investigation on a given topic or problem'.
12. Students in the survey reported that the style 'class discussion led by teacher' was used very frequently.
13. The majority of the sample enjoyed the styles ' teacher talks/lectures', 'students make interpretations', 'class discussion led by teacher' a very great deal.
14. Students enjoyed presenting work to the group generally a reasonable amount.
15. Students enjoyed the style 'formulating hypotheses' a great deal.



16. Students enjoyed the styles 'watch a video or listen to a tape and make notes', 'discussion in small group', 'students derive material from many sources to work on a given problem, investigation or a topic', 'students organize an investigation on a given topic or problem' generally a great deal.
17. Students in the whole sample generally enjoyed a lot using different resources such as the video, television, maps, pictures and transparencies.
18. Students in the whole sample had a positive attitude towards their history teacher.

Thus, students' attitudes toward history were positive to most of the items that related to different titles. It can be noticed that students of the experimental group became less favourable to the style 'teacher talks/lectures' after using the inquiry method. Students of the control group preferred different learning styles not only 'teacher talks/lectures' and this reflects the importance of trying different learning styles to teach history in schools.

### **5. 9 Analysis of MWGCTA and the Achievement Test (AT)**

The achievement test (AT) and the Modified Watson Glazer Critical Thinking Appraisal (MWGCTA) contain interval data. The application of a mixed designs involving the repeated measurement analysis of variance (ANOVA) can be used when the treatment or the observation of students or teachers is made more than once (Glass and Hopkins, 1984, p. 472). Analysis of variance for repeated measurements enables the researcher not only to discover or ascertain the differences between groups but also to see the interaction between combinations of variables which sometimes have an effect different from the one would expect from each of the variables alone (Norusis, 1986, p. 265). Keppel (1973) defined an interaction as follows:

An interaction is present when the simple main effects of one variable are not the same at different levels of the second variable (p. 178).

This means that the ANOVA enables the researcher to establish evidence of two kinds of an interaction, such as ordinal interaction when the lines do not cross and disordinal interaction when the lines cross (Glass and Hopkins, 1984, p. 409)



(discussed later). An ordinal interaction exists when the effect at the time of the pre-test, post-test and postponed test increased or decreased in the same direction whereas the disordinal interaction exists when the effect of the three tests cross each other. The researcher avoided using the t-test; as several comparisons were desired it was deemed more appropriate to use analysis of variance. Norusis (1986) indicated that:

The reason for not using many t-tests is that when you make a lot of comparisons involving the same means, the probability that one out of the bunch will turn out to be statistically significant increases...Multiple comparison procedures protect you from calling too many differences significant. They adjust for the number of comparisons you're making (p. 263).

The analysis of variance for repeated measurement, therefore, was used to calculate the differences between the experimental and control group at the time of the pre-test, post-test and postponed test because it enabled the researcher to "test the differences between groups and make more accurate probability statements than using many separate t-tests" (McMillan and Schumacher, 1989, pp. 358-9).

### **5. 9. 1 The Frequencies and Percentages of the MWGCTA**

The MWGCTA was applied at the time of the pre-test, post-test and postponed test. The researcher will present here the descriptive analysis of students' answers at the time of the post-test (after teaching the new programme that relied on the inquiry method) (see appendix 13).

#### **5. 9. 1. 1 Inference**

As mentioned earlier, the MWGCTA consisted of five exercises, each exercise having 16 items. The frequencies and percentages of students' scores are presented below.

Table 1 in Appendix 13 indicates that none of the students in the two groups achieved the maximum score of 16 in the inference exercise. The experimental group mean was 4.64, slightly lower than the control group mean of 4.85.

#### **5.9.1.2 Recognition of Assumptions**

In relation to the recognition of assumptions exercise, table 2 in Appendix 13 shows that none of students in the two groups achieved the maximum score of 16. The experimental group mean was 8.12, slightly lower than the control group mean of 8.72.

#### **5.9.1.3 Deduction**

With respect to the deduction exercise it can be seen from table 3 in Appendix 13 that none of students in the two groups achieved the maximum score of 16. The experimental group mean was 8.71, which was slightly higher than the control group mean of 8.06.

#### **5.9.1.4 Interpretation**

In relation to the interpretations exercise, table 4 in Appendix 13 shows that the control group achieved a greater mean (8.90) than the experimental group (7.45).

#### **5.9.1.5 Evaluation of Arguments**

With regards to the evaluation of arguments, table 5 in appendix 13 indicates that the experimental group mean was 9.48, which was slightly higher than the control group mean of 9.43.

**5. 9. 1. 6 Frequencies of the Total Score of MWGCTA**

**Table 55: Total Scores of MWGCTA: Frequencies and Percentages (%)**

Experimental Group		Control Group	
Total Scores	Frequencies of Students	Total Scores	Frequencies of Students
29	2 (6.5)	30	1 (1.6)
31	2 (6.5)	31	1 (1.6)
32	1 (3.2)	33	3 (4.8)
34	2 (6.5)	34	1 (1.6)
35	4 (12.9)	35	3 (4.8)
36	2 (6.5)	36	3 (4.8)
37	3 (9.7)	37	8 (12.9)
39	3 (9.7)	38	2 (3.2)
40	3 (9.7)	39	7 (11.3)
41	1 (3.2)	40	9 (14.5)
42	1 (3.2)	41	4 (6.5)
43	1 (3.2)	42	5 (8.1)
44	2 (6.5)	43	2 (3.2)
47	2 (6.5)	44	3 (4.8)
51	1 (3.2)	45	3 (4.8)
52	1 (3.2)	46	1 (1.6)
-	-	47	1 (1.6)
-	-	48	2 (3.2)
-	-	49	1 (1.6)
-	-	50	1 (1.6)
-	-	52	1 (1.6)
Mean= 38.41      Stddev= 5.87		Mean= 39.98      Stddev= 4.57	

Table 55 indicates that the mean of the experimental group was lower than the mean of the control group in relation to the total score of the MWGCTA at the time of the post-test. No student achieved the test's maximum score of 80: the highest score registered was 52, achieved by one student in each group. Compared with the original version of WGCTA conducted in grammar school pupils in Britain, in which the mean score was 57.2, it can be noticed that students in the experimental group had a mean of 38.4 and the control group had mean of 39.9. This suggests that students of



the experimental and control groups achieved less well than students at the grammar school, and concurs with the findings of the survey for which the mean was 37. The size of difference between mean scores may relate to cultural differences between students in Saudi Arabia and Britain, and the familiarity of students in Britain with different kinds of such tests, and the unfamiliarity of Saudi students with this test.

### 5. 9. 1. 7 The Differences between the Experimental and Control Groups in the Modified Watson-Glazer Critical Thinking Appraisal (MWGCTA)

The MWGCTA was given to the experimental and control groups as a pre-test, a post-test and postponed test. The mixed-design of analysis of variance (ANOVA) was used to test for differences due to the main effects of control group and the experimental group and pre-test, post-test and postponed test, and their interaction.

Table 56 : ANOVA of the Total of the MWGCTA between the Experimental and Control Groups

Items	Group	Mean & (SD) pre	Mean & (SD) post	Mean & (SD) pp	Between Group	Within Group	Interaction
Total	(E)	36.93 (5.32)	38.41 (5.87)	39.29 (4.54)	N.S	p<.001	N.S
Pre	(C)	36.21 (3.66)	39.98 (4.57)	39.72 (4.40)			

Table 56 presents the results of the ANOVA of MWGCTA which indicates that differences within the experimental and control groups across pre-, post- and postponed tests were significant (p<.01). Differences between the experimental group and control group were not significant at the three stages. Differences between the experimental and control groups were not significant at any stage.

The ANOVA indicates that no significant differences were found between the experimental group and control group at the time of the pre-test, post-test and postponed test, therefore the null hypothesis is accepted.

As may be seen there were no significant differences between the experimental group and control group in the MWGCTA at the time of the post-test, hence the null hypothesis is accepted.

The table above shows the mean scores and the standard deviation of the MWGCTA at the time of the postponed test for the control and experimental groups. This indicates that no significant differences existed between the experimental group and control group at the time of the postponed test of the MWGCTA, hence the null hypothesis is accepted or confirmed.

The researcher used the t-test also to ascertain differences between the two groups in relation to the MWGCTA for each section separately at the time of the pre-test, post-test and postponed test and for the total score as follows:

Each section of the MWGCTA contained 16 items and had 16 scores for each section, i.e. one score for one item, as mentioned in the previous chapter.

Table 57 : ANOVA and T-test of the MWGCTA between the Experimental and Control Groups for Each Exercise

Items	Group	Mean & (SD) pre	Mean & (SD) post	Mean & (SD) pp	Between Group	Within Group	Interaction
Ex1	(E)	4.32 (1.60)	4.64 (1.76)	4.77 (1.68)	N.S	p<.01	N.S
	(C)	3.87 (1.72)	4.85 (2.03)	4.74 (1.59)			
Ex2	(E)	7.54 (2.20)	8.12 (2.39)	8.03 (1.19)	N.S	p<.05	N.S
	(C)	7.80 (2.03)	8.72 (1.89)	8.06 (1.74)			
Ex3	(E)	7.67 (1.72)	8.71 (2.46)	8.25 (2.09)	N.S	p<.05	N.S
	(C)	7.64 (1.70)	8.06 (1.97)	8.32 (2.01)			
Ex4	(E)	8.29 (1.93)	7.45 (2.06)	8.29 (1.73)	N.S	N.S	p<.001
	(C)	7.67 (1.80)	8.90 (1.98)	8.24 (2.08)			
Ex5	(E)	9.06 (2.06)	9.48 (2.77)	9.93 (2.74)	N.S	.004	N.S
	(C)	9.21 (2.06)	9.43 (2.02)	10.35 (2.12)			

Concerning the *inference* exercise it can be seen that overall differences across pre-, post- and postponed tests between the experimental and control groups were not significant nor at any stage. Differences within experimental or control group were significant (p<.01), The mean of the experimental group increased gradually at the post- and postponed tests. The mean of the experimental group was lower than the mean of the control group at the pre- and post-tests, whilst the experimental group had mean score slightly higher than the mean of the control group at the postponed test. It was noticed that the means of the two groups were quite close to each other particularly at the post- and postponed tests.



With regard to the section concerning *recognition of assumptions* it can be seen that differences across pre-, post- and postponed tests between the experimental and control groups were not significant. Differences between them were not significant at any stage. Differences within groups were significant ( $p < .05$ ), the means of the two groups increased at the post-test and the mean of the experimental group was lower than the mean of the control group across the three tests.

With respect to the section concerning *deduction*, it can be noticed that differences across pre-, post- and postponed tests between the experimental and control groups were not significant. Differences between them were not significant at any stage. Differences within groups were significant ( $p < .05$ ), the mean of the experimental group increased at the post-test and decreased slightly at the postponed test while the mean of the control group increased at the post- and postponed tests. It was noticed that the means of the two groups were close at the pre-test while the mean of the experimental group was higher than the mean of the control group at the post-test and the mean of the control group was slightly higher than the mean of the experimental group at the postponed test.

Concerning the *interpretation* exercise it can be seen that differences across pre-, post- and postponed tests between the experimental and control groups were not significant. There was significant interaction between the experimental and control groups ( $p < .01$ ). Differences within groups were not significant. Students of the control group achieved slightly higher scores than the experimental group at the time of the post-test and this may have been by chance. The experimental group achieved very slightly higher than the control group at the postponed test.

With respect to the last exercise of the MWGCTA which related to the *evaluation of arguments* it can be seen that differences across pre-, post- and postponed tests between the experimental and control groups were not significant. Differences between them were not significant at any stage. Differences within groups were significant ( $p < .01$ ). At the time of the postponed test, students of the control

group gained mean scores higher than the experimental group and this may have been by chance.

With regard to *total scores* of MWGCTA it can be seen that differences across pre-, post- and postponed tests between the experimental and control groups were not significant. Differences between them were not significant at any stage. Differences within groups were significant ( $p < .01$ ). Students of both experimental and control groups were at the same level of achievement in critical thinking (table 57).

In summary, as mentioned in chapter 4, the MWGCTA was scored out of 80, one mark for each item. Most of the students in the experimental and control groups scored around 40 and therefore attained a satisfactory level of achievement in the critical thinking test. This indicates that it is possible to develop students' critical thinking skills. The null hypothesis was largely upheld: that no differences would be found between the experimental and control groups in relation to the MWGCTA at the time of the pre-test, post-test and postponed test. This may explained by the following points:

1. The period of time over which the new programme was delivered, and the number of teaching hours was insufficient to enable students to develop different critical thinking skills.
2. The students' familiarity with the traditional method since their school life needs more time to improve such skills.
3. As mentioned before this was the first time for students in the first year of secondary school having this kind of critical thinking test.

Generally students achieved moderately in the MWGCTA.

## **5. 10 The Descriptive Analysis of the Achievement Test AT**

As mentioned in a previous chapter, the achievement test was made up 9 questions. It applied only to the experimental and control groups. The frequencies and percentages of the students' scores at the post-test are presented here below (see Appendix 14):



### **5. 10. 1 Question 1**

Table 1 in Appendix 14 indicates that in the experimental group the greatest number of students achieving one score was 9 students scoring 11, whereas in the control group, group the greatest number of students achieving one score was 14 students scoring 9. The experimental group achieved higher marks than the control group in multiple choice question.

### **5. 10. 2 Question 2**

Table 2 in Appendix 14 indicates that in the experimental group the greatest number of students achieving one score was 11 students (35%) scoring 9, whereas in the control group, the greatest number of students achieving one score was 16 students (25.8%), also scoring 9.

### **5. 10. 3 Question 3**

Table 3 in Appendix 14 indicates that in the experimental group the greatest number of students achieving one score was 8 students (25.8%) scoring 10, and in the control group, the greatest number of students achieving one score was 16 students (25.8%), also scoring 10, even though the control group had mean score slightly higher than the mean of the experimental group..

### **5. 10. 4 Question 4**

Table 4 in Appendix 14 shows that students of the experimental group achieved greater than the control group because the mean of the experimental group was higher than the mean of the control group at the time of the post-test as will be discussed later.

### **5. 10. 5 Question 5**

The general impression that related to this question is that students' scores were clustered around the scores 8, 9, 10. The experimental group gained a mean score higher than the mean of the control group (table 5, Appendix 14 ).

### **5. 10. 6 Question 6**

Table 6 in Appendix 14 indicates that, in the experimental group the greatest number of students with one score was 6 students (19.4%) scoring 5, whereas in the



control group, the greatest number of students with one score was 10 students (16.1%) scoring 0. The experimental group mean was higher than the control group mean.

#### **5. 10.7 Question 7**

Table 7 in Appendix 14 shows that 8 students in each group (25.8% of the experimental group and 19.4% of the control group) scored 8. The control group mean score was higher than that of the experimental group.

#### **5. 10. 8 Question 8**

Table 8 in Appendix 14 indicates that 8 students (25.8%) of the experimental group scored 6, whilst 24 students (38.7%) of the control group also scored 6. The experimental group mean was slightly lower than the control group mean.

#### **5. 10. 9 Question 9**

Table 9 in Appendix 14 shows that there was a distribution across the scores that related to it. In the experimental group the greatest number of student with one score was 8 (25.8%) scoring 6, whilst in the control group the same score was achieved by 12 students (19.4%). The experimental group mean was higher than the control group mean.

#### **5. 10. 10 The Achievement Test (AT) by Using ANOVA**

The achievement test was conducted as a pre-test, a post-test and postponed test for the experimental group and control group. The mixed design analysis of variance was applied to test if there were any differences between the two groups at the time of the pre-test, post-test and postponed test as a whole. In addition the t-test was used to ascertain the differences between the two groups at the time of the pre-test, post-test and postponed test. This section will be organized as follows:

- The differences between the experimental and control groups at the time of the pre-test, post-test and postponed test for the total scores of the achievement test.
- The differences between the two groups at the time of the pre-test, post-test and postponed test for each question of the achievement test (AT).

Table 58 : ANOVA and T-test of the Total of the Achievement Test between the Experimental and Control Groups

Group	Mean & (SD) pre	Mean & (SD) post	Mean & (SD) pp	Between Group	Within Group	Interaction
Experimental	45.96 (9.61)	72.45 (10.47)	70.74 (9.71)	<.05	<.001	N.S
Control	42.08 (9.09)	67.17 (10.62)	65.40 (11.07)			
p. of T-Test	.066	.026	.025			

Table 58 shows the mean scores of students in the pre-, post- and postponed tests of achievement using the t-test for independent samples to enable the researcher to calculate the statistical significance of the differences between the means of two independent groups at each stage.

Differences across pre-, post- and postponed tests between the experimental and control groups were significant ( $p<.05$ ), the mean of the experimental group was higher than the mean of the control group at the post- and postponed tests. At the post- and postponed tests, differences between them were significant ( $p<.05$ ), with the experimental group showing the greater achievement. This may be attributed to using the inquiry method with the experimental group that enabled them to achieve higher than the control group at the time of the post- and postponed tests.

In relation to the null hypothesis - that there will be no significant differences between the control group and the experimental group in the achievement test at the time of the post-test - the finding indicates that a significant difference was found in the post-test of achievement between the experimental group and control group with the mean of the experimental group being higher than the mean of the control group at the time of the post-test, therefore the null hypothesis is accepted or confirmed with regard to the pre-test (where the difference between the two groups was not significant) but it is rejected with regard to the post-test and postponed test where a significant difference was found between them.

This difference may be in favour of the experimental group due to learning the new teaching programme. Therefore the null hypothesis is rejected.

The researcher will present the t-test results of each question of the achievement test (AT) to ascertain the differences between the experimental and control groups at the time of the pre-test and post-test or postponed test as follows:



Table 59 : ANOVA and T-test of the Achievement Test between the Experimental and Control Groups for Each Question

Items	Group	Mean & (SD) pre	Mean & (SD) post	Mean & (SD) pp	Between Group	Within Group	Interaction
Q1	(E)	8.64 (2.00)	11.12 (2.51)	10.67 (2.13)	N.S	<.001	N.S
	(C)	8.19 (2.09)	10.33 (2.23)	11.06 (2.36)			
Q2	(E)	8.32 (1.53)	9.77 (1.30)	9.61 (1.49)	N.S	<.001	N.S
	(C)	7.61 (2.01)	9.35 (1.71)	9.45 (1.59)			
Q3	(E)	7.61 (2.45)	7.93 (1.91)	7.87 (1.72)	N.S	.05	N.S
	(C)	7.17 (1.99)	7.96 (2.05)	7.75 (1.80)			
Q4	(E)	4.25 (1.86)	9.61 (2.04)	9.19 (2.18)	.04	<.001	N.S
	(C)	3.56 (2.24)	8.59 (2.53)	8.32 (2.85)			
	p. of T-Test	N.S	.05	N.S			
Q5	(E)	6.12 (2.87)	8.93 (1.89)	8.58 (1.84)	<.05	<.001	N.S
	(C)	5.21 (2.82)	8.51 (1.88)	7.37 (2.03)			
		N.S	N.S	.006			
Q6	(E)	.355 (1.38)	5.67 (2.89)	5.74 (2.59)	<.05	<.001	.05
	(C)	.355 (.870)	4.32 (2.86)	4.82 (2.30)			
	p. of T-Test	N.S	.03	N.S			
Q7	(E)	5.93 (2.76)	9.000 (2.06)	8.64 (2.04)	N.S	<.001	N.S
	(C)	5.77 (2.48)	8.79 (2.10)	8.06 (1.94)			
Q8	(E)	2.58 (1.50)	4.22 (1.38)	4.87 (1.31)	N.S	<.001	N.S
	(C)	2.80 (1.55)	4.37 (1.83)	4.22 (1.70)			
Q9	(E)	2.12 (2.21)	6.16 (2.32)	5.41 (2.52)	<.05	<.001	N.S
	(C)	1.41 (1.86)	4.67 (2.78)	4.43 (2.57)			
	p. of T-Test	N.S	.01	N.S			

With regard to the first question, which contained 15 multiple choice items, (as mentioned in chapter 4 about the achievement test AT) it can be seen that differences across pre-, post- and postponed tests were not significant between the experimental and control groups although the differences within groups were significant ( $p < .01$ ) and the interaction between them approached significance ( $p = .06$ ). Differences between them were not significant at each stage. Overall, students of both experimental and control groups were similar at the pre-test whilst at the post-test the experimental group achieved higher than the control group, further at the postponed test the control group achieved higher than the experimental group.

In respect to the second question which requested students to distinguish between right and wrong answers, the findings of the study indicate that differences across pre-, post- and postponed tests were not significant between the experimental and control groups although the differences within groups were significant ( $p < .01$ ). Differences between them were not significant at each stage. Overall, students of both experimental and control groups achieved similar in this question.

In the third question of the achievement test, differences across pre-, post- and postponed tests were not significant between the experimental and control groups although the differences within groups approached significance ( $p = .06$ ). Differences between them were not significant at each stage. It may be seen that the difference between the two groups was not statistically significant for the third question whether at the time of each test individually or at the time of the three tests as a whole. Overall, students achieved similar in this question.

With regard to the fourth question of the achievement test it can be seen that differences across pre-, post- and postponed tests were significant between the experimental and control groups ( $p < .05$ ). At the time of the post-test, differences between the experimental group and control group were significant ( $p = .05$ ). Differences within groups were significant ( $p < .01$ ). Overall, students of the



experimental group achieved higher than the control group at each stage in this question. This latter may be due to use of the inquiry method.

In respect to the fifth question of the achievement test it can be clearly seen that differences across pre-, post- and postponed tests were significant between the experimental and control groups ( $p < .05$ ). Differences within groups were significant ( $p < .01$ ) although the increase in the achievement of the experimental group at the postponed test was significant ( $p < .01$ ). Overall, students of the experimental achieved gradually higher than the control group. These differences in favour of the experimental group could be due to teaching the new programme using the inquiry method.

With regard to the sixth question of the achievement test it can be seen that differences across pre-, post- and postponed tests were significant between the experimental and control groups ( $p < .05$ ) and the differences within them were significant ( $p < .01$ ). The interaction between them was significant ( $p = .05$ ), the increase in the achievement of the experimental group at the time of the post-test was significant ( $p < .05$ ). Students of the experimental achieved higher than the control group at the post- and postponed tests.

With respect to the seventh question of the achievement test it can be noticed that differences across pre-, post- and postponed tests were not significant between the experimental and control groups although the differences within groups were significant ( $p < .01$ ). Differences between them were not significant at each stage. Overall, students of the experimental group achieved higher than the control group. This may be attributed to the requirement of this question that related to the skills of inquiry method.

In relation to the eighth question of the achievement test that contained inferencing some information from a short passage; differences across pre-, post- and postponed tests were not significant between the experimental and control groups although the differences within groups were significant ( $p < .01$ ). Differences between them were not significant at each stage. Students of the two groups achieved generally



highly and to some extent similar at the time of the post-test and postponed test and the difference between them was not significant at the time of each test individually as mentioned earlier.

In relation to the ninth question of the achievement test that requested students to write a short essay about one aspect of the Prophet Mohammed as mentioned above in chapter 4, differences across pre-, post- and postponed tests were significant between the experimental and control groups ( $p=.01$ ) and the differences within groups were significant ( $p<.01$ ), the increase in the achievement of the experimental group at the post-test was significant ( $p=.01$ ). Overall, experimental group students achieved greater than students in the control group at the time of the post-test and postponed test. This may be attributed to the requirements of this question that pertained to the skills of inquiry method.

In short it can be noticed that students were similar in their achievement on questions 1, 2, and 3 whereas the experimental group achieved higher than the control group on questions 4, 5, 6, 7, 8, and 9. This may be attributed to teaching the new programme that depended on the inquiry method. Differences that existed within groups may explain that when students are taught the history lessons whether by the traditional method or inquiry method they achieved higher than their levels at the pre-test. Further students have studied about the prophecy of prophet Mohammed at the elementary stage and certainly they should know a lot about it from the religious side.

#### **5. 10. 11 Summary of the Findings of the Achievement Test (AT)**

To sum up the results which relate to the achievement test the following findings can be reported:

- There was no significant difference between the experimental and control groups in relation to the first, second and third questions at the time of the pre-test, post-test and postponed test whether at the time of each test individually or at the time of the three conditions as a whole while the only significant difference was within groups.

- In relation to the fourth question there was no significant difference between the experimental and control groups at the time of the pre-test and postponed test whilst the difference between them at the time of the post-test approached statistical significance and the mean of the experimental group was higher than the mean of the control group. The difference between them was found statistically significant at the time of the pre-test, post-test and postponed test as a whole and within groups.
- The difference between the two groups was found not to be statistically significant at the time of the pre-test and post-test but there was a significant difference between them at the time of the postponed test with regard to the fifth question. The difference between them at the time of the three tests as a whole and within groups was found to be significant.
- With respect to the sixth question it can be seen that students in the experimental and control groups were at the same level at the time of the pre-test and postponed test while they differed significantly at the time of the post-test, with the mean of the experimental group being higher than the mean of the control group. Moreover there were significant differences between them at the time of the three tests as a whole, within groups besides significant interaction.
- With regard to the seventh and eighth questions the difference between the experimental and control groups was not statistically significant at the time of the pre-test or post-test and postponed test whether at the time of each test separately or as a whole but there was a significant difference within groups.
- In question nine the two groups were at the same level of achievement at the time of the pre-test but they differed significantly at the time of the post-test with the mean of the experimental group being higher than the mean of the control group. There were significant differences between them at the time of the three conditions and within groups.

The findings of this part of the study indicate that the difference between the experimental and control groups at the time of the pre-test of achievement was not



statistically significant. This indicates that they were at the same level of achievement before starting the experiment, though some differences between them were found to be statistically significant at the time of the post-test and postponed test. This may be explained by the effect of the inquiry method on students' achievement in history in comparison to the traditional method because students of the experimental group achieved greater than students of the control group at the post- and postponed tests.

### **5. 11 Summary of the Research Findings**

The following points are the main findings of this study.

1. From the frequency table in relation to the students' grades in history it is clear that most of them in the experimental and control groups gained 'very good' level of achievement. This agrees with the survey group results.
2. Most of the students (61.3%) in the experimental and control groups spent one hour in studying history at home. The majority of the survey group (96.0%) spent one hour on homework, the same as the experiment group.
3. There was a significant difference between students in the experimental and control groups in their preference for the learning style 'teacher talks/lectures'. Students in the experimental group tended to prefer other learning styles after having followed the teaching programme which operated using the inquiry method but students in the control group still preferred this style. Most of the survey group supported the control group's view.
4. With respect to students' preference of the learning styles 'students infer from given information' and 'students draw conclusions' the results of the post-test and postponed test between groups was different and statistically significant, whereas in most of the learning styles no significant difference was found between the two groups.
5. There was a significant difference between the two groups in relation to the use of the style 'teacher talks/lectures' in history, this was seen to be in the favour of the experimental group that had used this style less owing to their use of the inquiry



method; in other words this may attributed to using the inquiry method. In addition students in the control group indicated that this style was used very much and students in the whole sample supported this view extremely.

6. There was a significant difference between the two groups in relation to using the styles 'presenting work to the groups', 'listen to others' presentation' at the time of the pre-test, post-test and postponed test.
7. There was a significant difference between the experimental group and control group in relation to 'students formulate hypotheses', 'discussion in small groups' and 'students derive material from many sources to work on a given problem in history' at the time of the pre-test, post-test and postponed test.
8. The control group reported that they still enjoyed the learning style of 'teacher talks/lectures', whereas the mean of students in the experimental group at the time of the post-test was less than the control group for this variable.
9. There was a significant difference between the two groups in their enjoyment of the style 'making generalizations' at the time of the pre-test, post-test and postponed test.
10. There was a significant difference between the two groups in their enjoyment of the style 'inferring from given information', 'drawing conclusions', and 'identifying the problem and devising ways of investigating it' at the time of the pre-test, post-test and postponed test.
11. There was a significant difference between the two groups in their enjoyment of books in history at the time of the pre-test, post-test and postponed test.
12. There was a significant relationship between students' enjoyment of documents, pictures, maps and transparencies and their use of them in history.
13. Students in the experimental and control groups had quite a positive attitude towards their history teacher.
14. There were significant differences between the two groups in relation to their use of pictures, maps and transparencies in history, with the experimental group registering higher results here.

15. There was a significant difference between the experimental group and control group in the achievement test following the teaching programme which used the inquiry method at the time of the post-test and postponed test.
16. There were no significant differences between the experimental group and control group in the results of the post-test and postponed test of the Modified Watson-Glazer Critical Thinking Appraisal.
17. Most of the students in the whole sample (96.0%) spent one hour in studying history at home.
18. Students in the whole sample indicated that the learning style of 'teacher talks/lectures' had been used very much by history teachers.
19. Most of the students in the whole sample enjoyed using some of the resources such as video, television, pictures, maps and transparencies in history lessons.
20. Students in the whole sample and in the experiment group had a positive attitude towards history teachers.
21. A high percentage of students (87.2%) in the whole sample indicated that history was a very important subject in schools, supporting the view of the experimental and control groups.
22. Over half the students in the survey indicated that they would study history at higher education and this agrees with the experimental and control groups' perception.
23. Students in the whole sample survey reached a satisfactory level of achievement in the Modified Watson-Glazer Critical Thinking Appraisal and this agrees with the results of the experimental and control groups.

Consequently, it has been clear that the experimental group has performed better than the control group in the achievement test at the time of the post-test and postponed test. there were an agreement between students in the experimental, control and survey groups in relation to the importance of history in schools, the qualities of history teacher and the need to use different resources.



The experimental and control groups were similar with respect to the importance of history, their description of the history teacher and using different kinds of resources in history lessons. This shows that the two groups were similar in most of the extraneous variables that might affect the experiment e.g. motivation as mentioned in chapter 4. Differences between the experimental and control groups were significant in using different learning styles such as 'teacher talks/lectures', 'students present work to the group', 'students listen to others' presentations', 'students formulate hypotheses', 'discussion in small groups', 'students derive material from many sources to work on a given problem or topic', 'students organize an investigation on a given topic or problem' and 'students infer from given information'. Most of the items included in the SAQ were not significant between the experimental and control groups. With regard to the MWGCTA, no significant differences were found between the experimental and control groups across pre-, post- and postponed tests. In relation to the AT, the experimental group achieved greater than the control group in the achievement test in history at the post- and postponed tests. It can be noticed that teaching students the new programme by following the procedures of the inquiry method affected their attitudes toward the style 'teacher talks/lectures' because students of the experimental group became less favourable than the control group at the post- and postponed tests and students' achievement in history. In addition, teaching the new programme was unable to affect students' achievement in the MWGCTA because no significant differences were found between the experimental and control groups. Further most of the findings concluded from the frequencies and percentages have supported each other whether in the experiment or survey groups. This enables the researcher to generalize these findings to the whole population.



## **Chapter VI**

### **General Discussion, Critiques and Recommendations**

#### **6.1 Introduction**

The aim of this study is to investigate the effect of two different teaching methods, the inquiry method and the traditional method, on students' achievement, their attitudes toward history and their critical thinking. This investigation has been done by carrying out an experiment and survey study on students in the first year of secondary school in Saudi Arabia.

The advantages and disadvantages of both the inquiry and traditional methods; the procedures involved in applying each method; the importance of motivation; the importance of questioning; the nature of history; studying history in schools; history teaching; and some of the research evidence in relation to students' learning and teaching methods have all been discussed in chapter 2.

Aspects of the education system in Saudi Arabia were presented in chapter 3 to show that it relies on Islamic principles and springs from Islamic tenets. The objectives of education in Saudi Arabia in general, and of history teaching in particular, emphasised the need to practise the scientific method and use thinking skills. The didactic method was used mostly in teaching history in secondary schools. There was a need to investigate the effect of using other teaching methods in the hope that history teaching in Saudi Arabia would benefit.

The methodology of this present study was discussed in chapter 4. A complete description was given of the processes involved in the study, from designing the students' attitudes questionnaire, achievement test and Modified Watson-Glaser Critical Thinking Appraisal, to determining the target population, sampling procedures to be used, exploring ethical issues and carrying out the fieldwork.

Chapter 5 consists of an analysis of data obtained from the fieldwork, and interpretation and comment on the findings of the present study in full detail regarding the survey and the experiment group.

The aim of this chapter is to provide a general discussion about the results of the study and consider them in the light of a literature review. The strengths and weaknesses of the research will also be discussed. Finally, in the light of the findings of this study, suggestions and recommendations for the teaching of history in Saudi Arabia and further research will be offered, in the hope of improving and developing history teaching in Saudi Arabia in the future.

In accordance with the findings of this study discussed in the previous chapter, the researcher believes that, by enabling students to work in small groups, the inquiry method offers opportunities to be more effective than the didactic or traditional method of teaching history. The findings of this study will also be used to link this chapter's general discussion and critiques with the recommendations.

## **6.2 General Discussion of the Findings of this Study**

The main issues arising from the research and the literature review are as follows:

1. Most of the literature indicates that the didactic or traditional method is the most commonly employed teaching method, and has been used in teaching for many years (Fenton, 1966, Darling, 1978). Throughout this study, conducted in Saudi Arabia, it has been clear that mostly the traditional approach is used in secondary schools. This was reported by the majority of students whether in the survey or in the experiment groups (table 8 and appendix 12, table 2).
2. The inquiry method is seen as enabling students to use their thinking skills, work in small groups to build social relationships among themselves, find out solutions or answers by themselves and participate in the learning and teaching process actively and effectively (Bruner, 1962, 1970, Fenton, 1966, Jones, 1979, Burston, 1972, Vygotsky, 1978, Windrim, 1990). The results of the present study reflect these points because students of the experimental group performed better than students of the control group, especially in questions that related to higher order



thinking e.g. questions 7 and 9 of the achievement test (table 59). Students also enjoyed working in small groups.

3. One advantage of the inquiry method is that it enables students to think critically (Reed, 1980, Mehlinger, 1981, Garvey and Krug, 1977). This study was unable to confirm this although this was the first time that students in Abha Directorate had been taught in this way and they may have found the MWGCTA which had been applied to them unduly difficult because of its novelty and unfamiliarity.
4. Questioning plays a basic role in the learning and teaching process, promoting students' thought, motivating them and satisfying their curiosity (Dobkin et al, 1985, Yelon et al, 1977, Brown and Wragg, 1993). The inquiry method enables students to raise questions and to present historical problems or events (Mbenga, 1993). The present study confirmed that students in the first year of secondary school enjoyed a learning style which involved them in asking questions and making interpretations positively (appendix 12, table 3). It should be taken into account by teachers that the use of different questions gives more opportunities to their students to participate more effectively and develops their thinking skills. This will be indicated in the recommendations.
5. Motivation plays a significant role in stimulating students to learn, enjoy and participate willingly and actively (Hawley in Yelon, 1977, Gage and Berliner, 1992, Sprinthall and Sprinthall, 1977). The present study confirms this: students in the experiment group changed their attitudes towards teacher talk and lectures after studying under the new programme using inquiry methods that gave them opportunities to arrive at answers by themselves. For example, students in the experimental group showed a decreased preference for the traditional style, while students in the control group still strongly preferred it (table 36). If teaching methods are to be influenced by students' attitudes, then this is one instance where students' enjoyment and active involvement may be promoted. This will be addressed in the recommendations for teachers.



6. Using different educational aids may motivate students to be more willing to learn and enjoy teaching (McClelland and Steele, 1973). The results of the present study support this: students in both the survey and the experiment groups expressed their strong enjoyment of using different resources in history, for example, videos, television, audio cassettes, pictures, maps, documents, books and transparencies (table 10 and appendix 12, table 4). This will be referred to in the recommendations.
7. Different views of the nature of history include an emphasis on studying the past and human experience as well as a process of inquiry which uses the scientific approaches (Collingwood, 1946, Sturley, 1969, Marwick, 1970, Burston et al, 1972, Chaffer and Taylor, 1975 and Vaudry, 1989). This may be important for history teachers who may consider these issues irrelevant and this will be indicated in the recommendations.
8. Most authors address the importance of different selected criteria to design or construct any history syllabus, for example, students' interests, needs, age and aptitudes (Assistant Masters Association, 1975, Chaffer and Taylor, 1975). The author considers these criteria to be very important to the curriculum planners.
9. Other writers indicate that in constructing any history syllabus, there is a need to strike a balance between local, national and international history and also in the use of different resources, in order to enable students to acquire a global knowledge and enjoy studying history (Edgington, 1982). To benefit from studying history at schools, students may need various items of information about the past and their present - day lives and this will be indicated in the recommendations.
10. Different approaches to and methods of history teaching have been reviewed. These would enable students to acquire knowledge and improve their learning and their use of the inquiry and scientific method (Partington, 1972, Chaffer and Taylor, 1975, Jones, 1973, and Steele, 1975). It may be useful to take advantage of using different teaching methods in history lessons so as to involve students in

different activities and thereby make history enjoyable in schools. This will be considered in the recommendations.

11. Some writers emphasize the content of history more than the cognitive skills, while others give less attention to the content and more to the cognitive skills (Nichol, 1984 and Cooper, 1992). It may be useful to take into account the strengths of both views.
12. Most writers emphasise the importance of studying history to fulfil a variety of purposes in schools (Blyth, 1966, Garvey and Krug, 1977, Slater, 1978, Edgington, 1982, Nichol, 1984, Hurst and Shepard, 1984, Fines, 1987, de Marco and Medley, 1989, Pluckrose, 1991, Cooper, 1992, White, 1994). The number and breadth of these purposes argue strongly that history still has its place in schools. It is clear from the current study that the majority of students viewed history as important (table 16).

### **6. 3 Discussion of the Findings of the Present Research**

Some findings obtained from the Students' Attitudes Questionnaire SAQ, the Modified Watson-Glaser Critical Thinking Appraisal MWGCTA and the Achievement Test AT will now be discussed.

The survey findings relating to the SAQ indicate that students had positive attitudes toward different learning styles (table 7). This may reflect students' desire to move from the traditional method to different approaches, even though they still viewed the style 'teacher talks/lectures' very positively. In fact this is not surprising because they had been taught by this method for a long time. In addition teachers continue to use this approach in their teaching of all subjects. This may also be linked to the fact that they found this easy to prepare and plan, in comparison to the inquiry method which called for much effort and time for planning and providing the necessary materials and resources. It seems also that most of the teachers were introduced to different learning styles during their studies at university, but due to different factors such as time, curriculum content and their load in schools, they felt



unable to vary their teaching. It has been clear that students liked making generalizations, asking questions, presenting work to the groups, listening to others' presentations, formulating hypotheses, making interpretations, discussing in small groups, watching a video or listening to a tape and making notes, deriving material from many sources to work on a given problem or topic, organizing an investigation on a given topic or problem, inferring from given information, drawing conclusions, distinguishing between strong and weak arguments, identifying the problem and devising ways to investigate it positively. Such enthusiasm points towards capitalising on the advantages of all these activities. This will be referred to again later in the recommendations.

Students' responses to the use of different learning styles indicated that teacher talks and lectures was the style used most frequently in history lessons in Saudi Arabia (table 8). This reflects the predominance of the didactic or traditional method throughout all subject teaching in secondary schools. The present study agrees with the findings of Al-Thuwaini (1986) that the traditional method was the method most used in social studies in Saudi Arabia from the view of teachers and supervisors. Further, there is an agreement between this study and that of Al-Ismaeel (1977) who found that the traditional method was rated by 75% of teachers as used in the secondary schools, as mentioned in the educational system chapter. This style does not encourage students to use their thinking skills as it depends mainly on recalling facts (Bloom, 1956, Fenton, 1966, Campbell, 1990, Page, 1990).

Students in the survey expressed their greater enjoyment of the following over other styles: teacher talks and lectures, students asking questions, watching a video or listening to a tape and making notes, class discussion led by the teacher, students inferring from given information, drawing conclusions and distinguishing between strong and weak arguments (table 9). This suggests that students respond positively to different styles. The researcher concludes that students need to be more active and to participate to some extent in the learning and teaching process. This may reflect the demands of many education writers and thinkers who call for student-centred



education instead of teacher-centred e.g. Pestalozzi, Froebel, Rousseau and Dewey, as mentioned in the literature review.

Students in the survey group expressed their enjoyment of using maps, books and pictures more than other resources (table 10). This may be explained by the fact that teachers in Saudi Arabia have tended to use maps very frequently besides the prescribed textbook that included some pictures. As we have seen in the literature review there is a need to use different resources in all subjects in general and in history in particular in order to motivate students, to make learning and teaching more enjoyable and to avoid students' boredom of subjects and school (Bruner, 1966, Garvey and Krug, 1977, Vargas, 1977, Hawley in Yelon et al, 1977, Clifford, 1981, Pluckrose, 1991). Further, studying history is considered very important in enabling students to understand the past. Unless different resources are used to study history, perhaps depicting people who lived in the past, their lives, traditions and cultures, it is hard for students to imagine or understand clearly, concentrating instead on memorized facts and knowledge. This will be taken into account in the recommendations.

It has been clear that students in the survey had a strong positive attitude toward the history teacher and they viewed him as very knowledgeable and liked him very much (tables 11, 21 and 22). This is an interesting finding in the light of students' familiarity with a teaching style where all information is received from their teacher, who is then viewed as knowledgeable. It might be expected that students would not like their teacher for his authoritarian role. The fact that they liked him may reflect that students were familiar with their teacher's role and the traditional style since they had been in school for a long time. From this teachers should be aware of their students' attitudes and carefully monitor any changes. In addition, there may be a need for different training programmes for teachers.

Students expressed their enjoyment of the history content in Saudi Arabia (table 12). This was not surprising because the history curriculum includes information about the Prophet Mohammed and his Prophecy, and the Islamic History

that represents a part of students' beliefs. The findings of this study indicate that students in the first year of secondary school in Saudi Arabia consider history a very important school subject, and that its study satisfies a number of important purposes (table 16 and 17). This finding is supported in the literature review about the importance of studying history generally (Blyth, 1966, Garvey and Krug, 1977, Slater, 1978, Nichol, 1984, Fines, 1987, de Macro and Medley, 1989, Low-Beer and Blyth, 1991). However, whilst students enjoy history, this alone is not enough, for there may be factors which act against this, for example, the teaching approach. This is an interesting finding which is important to bear in mind in developing and improving history teaching, as will be shown later in the recommendations.

Students' responses to the open-ended question of the SAQ in the survey indicate their wish to use different teaching methods, different resources and questions in history lessons. This reflects that they generally have positive attitudes toward history because they expressed their enjoyment of it as mentioned earlier. Curriculum planners and decision makers should be aware of this when reviewing history teaching in the secondary stage, as will be indicated later in the recommendations.

From the findings of the experiment, it can be seen that there were no significant differences between students of the experimental and control groups in their preference for different learning styles in the post- and postponed tests with the exception of certain styles, as discussed in the previous chapter. This reflects that students differed in their preferences according to their different interests or experiences. The most important finding in this respect was that students of the experimental group showed lower preference for teacher talks and lectures in the post- and postponed tests while students of the control group still preferred it very positively (table 1, appendix 12).

With regard to students' enjoyment of history content, it can be noticed that students of the experimental group enjoyed it less positively than the control group in the post- and postponed tests (table 6, appendix 12). This is an unexpected result



because it was supposed that when students of the experimental group dealt with different books, references, handouts and different kinds of resources not just the prescribed textbook, they would enjoy the content of history more positively than the control group. This result may reflect the novelty of using the inquiry method that is considered to some extent brand new for students in Saudi Arabia, or maybe students found it more difficult and less clear-cut to deal with more than one book. The curriculum content of history includes the most important period of history for students in Saudi Arabia which is about the Prophet Mohammed. Students of the experimental group perhaps felt fearful of using many different books when they were taught by the inquiry method, because of their familiarity with the traditional method. Using different types of resources in teaching history emphasises the importance of motivation which includes using different resources to stimulate students, to encourage them to enjoy the learning and teaching process and to maintain their attention as mentioned previously in the literature review (McClelland and Steele, 1973, pp.483-4, Jones, 1979, p.93 and Mouly, 1982, p.255). Rowntree (1982) indicated the advantages of using different resources in the learning and teaching process as follows:

- Engaging students' motivation;
- Recalling earlier learning;
- Providing new learning stimuli;
- Activating the student's response;
- Giving speedy feedback;
- Encouraging appropriate practice (p.168).

Many of the findings in the present study provide evidence to support Rowntree's claims as follows:

#### *Engaging students' motivation*

The present study supported the engagement of students' motivation by using the inquiry method which demanded that students practise different procedures e.g. working in groups, finding out information by themselves, and using different resources such as books, handouts, transparencies and pictures. The findings of this



study indicated that most of the students expressed their enjoyment of using the inquiry method and these resources and of being motivated through the interaction between them and their teacher (Rowtree, 1982, p. 117), even though the inquiry method is considered self-motivating (Sheingold, 1987).

#### *Recalling earlier learning*

In the present study a post-test was conducted to achieve this purpose and to enable students to be aware of their learning and its outcome.

#### *Providing new learning stimuli*

This study included a new teaching programme using the inquiry method in which students can be involved in different aspects of learning such as drawing conclusions, making inferences, expressing their opinion and making generalizations. This study reported that there was a positive relationship between students' preference for making generalizations with using this style in history (table 52). This may indicate that this kind of learning style may be used effectively in teaching history not only through the inquiry method but also through the traditional method when teachers sometimes ask their students to recap on the lesson or give a summary of it. With the experimental group these styles were used frequently.

#### *Activating the students' response*

The findings of this study supported this point, as students were involved in discussion in groups, listening to each other, asking questions and using their thinking skills e.g. critical thinking. Further, students were engaged in formulating hypotheses and collecting data and testing and applying them in new situations. The findings of the present study indicate that there were relationships between some of students' preference for different learning styles and the use of these styles in history as follows: students' expressed a preference for teacher talks and lectures and for using this style in history teaching, and this may be attributed to the fact that the traditional method is the method most used in teaching history in schools in Saudi Arabia as mentioned previously. It was clear that there was a positive relationship between students' preference for asking questions with using this style in history. This can be attributed

to the fact that students by their nature like to ask and raise different questions to satisfy their curiosity. This is in agreement with the literature on the importance of questioning (Dobkin, 1985). Students expressed a preference for listening to others' presentations and making interpretations in history. The students' liking for, and positive attitude towards these learning styles can be attributed to the frequent use of these activities in history lessons with the experimental group during the experimental period. Students also expressed a preference for class discussion led by the teacher and practising this in history lessons, and the relationships between students' preference for this style and using it in history were positive (table 52). This may have been because the students were familiar with the traditional method which depends on the teachers' input and their main role in guiding and directing the class. Students expressed a preference for organizing an investigation on a given topic or problem, inferring from given information, drawing conclusions, distinguishing between strong and weak arguments, and identifying the problem and devising ways of investigating it with regard to their study of history. There was a positive correlation between students' preference for these styles and using them in history (table 52). The researcher may attribute that to the use of the inquiry method which enables students to enjoy such styles, and the desire of the control group and the whole sample to try them. This confirmed students' positive responses to using different styles.

#### *Giving speedy feedback*

This item was not addressed directly in this study, even though students felt happy when they found answers to their questions by themselves. Through informal meetings the teacher would tell them if they were doing well or not.

#### *Encouraging appropriate practice*

The study confirmed that students were encouraged to answer their queries and clarify issues by dealing with different resources not just the textbooks or the teacher. While teaching the new programme, the history teacher kept telling his students to practise the procedures of the inquiry method in their daily life and he asked them to prepare short essays about studying one aspect or to answer questions.



Teacher enthusiasm, the high priority given to this method and its emphasis on making generalizations will probably have important effects. Teachers will need to be aware of preparing various practice opportunities for their students.

The findings of this research show that there was a relationship between students' preference for many different learning styles and their enjoyment of history (table 53). This finding emphasizes that they may enjoy such styles when used in the teaching of history, and could imply that they would have a strong preference for experiencing and using different kinds of learning styles as much as possible. Additionally, these findings may be important for curriculum planners and teachers in Saudi Arabia in order to satisfy students' needs and interests by using different kinds of learning styles in history in particular, and in other subjects in general.

As well as students of both experimental and control groups enjoying the study of history, the results confirmed that history was very important in schools and that there were several significant reasons why this is so, for example, to get good jobs, to get by in life, for enjoyment, to gain qualifications, to gain social status and to take part in cultural life (appendix 12, tables 7, 10 and 11). This supports what has been mentioned in the literature review about the importance of studying history in schools. In agreement with some of the literature (Nichol, 1984, p.7, Partington, 1980, pp.11-2, Garvey and Krug, 1977, p.2, Slater, 1978, p.3), the researcher may deduce from the foregoing that history is very important in enabling students to achieve many aims for themselves as individuals and for society. This suggests that curriculum planners and decision makers should be aware of making history lessons more student-centred.

Students of the experimental group viewed their history teacher as less knowledgeable than the control group at the post-test stage (appendix 12, table 15): it was unusual for the students of the experimental group to see their teacher's role so diminished. As he just directed and guided them, they viewed him less positively than the control group. This may be attributed to the novelty of the inquiry method and students' unfamiliarity with the new role of their teacher. In the traditional method



teachers used to prepare everything related to the lesson. In the inquiry method, the teacher restricted his role in assisting students to find the answers or solutions by themselves. As long as students were used to their teacher taking the main role in the learning and teaching process, i.e. in the control group, they found their teacher more friendly than did those in the experimental group, whose teacher changed his role for the first time when using the inquiry method. In the traditional method the teacher is intimately involved in delivering material and intimately controls the process of learning. In the inquiry method the teacher may be seen as different, less knowledgeable and less worthy of respect and liking. Also the teacher involved in this change may be viewed as less certain of his professional skills.

It can be said that students generally have positive attitudes toward history in Saudi Arabia except for some items that related to the teacher talks and lectures. Students of the experimental group became less favourable towards this style than the control group. This may be due to their experience of the inquiry method. Further, students may view subjects positively or negatively when they are motivated by using different styles and resources (Sorenson, 1964). In this study students of the experimental group worked with each other in a free environment, practising different aspects of learning e.g. accessing resources and books which made them enjoy the learning context. Further, students' preference for the style involving teacher talks/lectures may be attributed to the fact that they were used to being taught by the traditional method from the beginning of their school career. Familiarity may encourage favourable responses, to the extent that some students still preferred receiving information from the teacher. A similar logic, operating for both teachers and students may help to explain the fact that the traditional method is predominant in schools, a finding in agreement with Ali (1977) and Al-Kilzah and Mokhtar (1987) in their consideration of the teaching of social studies in Saudi Arabia.

Using different learning styles may affect students' attitudes positively or negatively. When students were taught using another kind of teaching method, such as the inquiry method, they enjoyed it more than those in the control group who still

enjoyed the traditional method. This indicates the effect of the inquiry method in changing students' attitudes in the experimental group towards this style. This also may show that students of the control group were used to being taught by the traditional method throughout their school years. The researcher supports these two reasons regarding this issue. This means that teachers should pay attention to improving their teaching activities, introducing variety into their teaching and taking into account their students' attitudes, as mentioned previously.

From conducting the students' attitudes questionnaire SAQ the researcher noticed the following points:

Generally the differences between students in the two groups were not statistically significant in relation to most of the items of the students' attitude questionnaire SAQ. They had to some extent the same feeling toward history at the time of the pre-test, post-test and postponed test. This finding is in agreement with Al-Kayyatt (1980) in his conclusions about the differences between the experimental group (inquiry) and control group (traditional) with regards to their attitude toward the history curriculum in Kuwait. These differences were not significant at the time of the post-test. The previous finding is also in agreement with Williams (1981) who found no significant difference between the traditional and inquiry methods in promoting a positive attitude towards United States history. The present study also concurs to some extent with that carried out by Kamal (1990) who found significant differences between the experimental group (multiple teaching methods) and control group (traditional) in relation to students' attitudes towards history in Qatar at the time of the post-test.

As we have seen in the literature review, the traditional or didactic approach depends on students memorising and recalling facts from the textbooks (Darling, 1978) and teachers expend much effort using this approach (Fenton, 1966). This was in spite of the fact that educators asserted the importance of developing students thinking skills, especially critical thinking skills, and recommended teachers to use teaching methods that enable students to acquire and practise these skills



experientially (Campbell, 1990, Page, 1990). It has been clear that the inquiry method is one of the teaching approaches that enable students to practise the scientific method in order to solve problems and answer questions (Connell, 1980). Further, it helps students to develop their thinking skills. This method is considered parallel with critical thinking techniques.

From the present study, it can be seen that teaching the new programme by using the inquiry method did not affect students' critical thinking ability. This may be ascribed to the following points:

1. Students were unfamiliar with such tests. This test was applied to students at this stage for the first time and they may well have had no previous experience of it.
2. The students were used to being taught by the traditional method which does not encourage them to use their thinking skills, and in which they have little opportunity to participate in the learning and teaching process.
3. The students were used to receiving knowledge and information from their teacher, and they were without opportunities to offer their perception or evaluation of events or to distinguish between facts and myths and infer or draw conclusions in history lessons.
4. The period over which the new programme was taught was short, and the frequency of history classes using the inquiry method for the experimental group was only once per week. This may have been insufficient to enable students to practise actively and develop effectively such skills of critical thinking.
5. It may have been that this test seemed unduly difficult to students because it had been insufficiently adapted to their cultural framework and knowledge, even though the researcher has modified and refined it very carefully.

The researcher believes that each of the reasons listed above, particularly points 1, 4, 5, are important factors influencing these results. In spite of non significant differences found between the two groups in the MWGCTA, these indicate



that students attained a satisfactory level of achievement, as mentioned earlier, and this emphasises that students have the ability to train and practise the skills of critical thinking. This is also in agreement with most of the literature that asserts the importance of critical thinking and its skills, such as making inferences, interpretations, deductions and evaluating of arguments (Taba, 1962, Wesley and Wronski, 1965, McPeck, 1981, Craft, 1991).

The findings of this study in relation to the MWGCTA agreed with those of Rothstein (1960) who found no significant differences between the experimental and control groups in the critical thinking test, in that students of the experimental group acquired the same amount of critical thinking skills as the control group. There is also an agreement between this study and the findings of the study undertaken by Lee (1967) who found that the students of the control group who had not been exposed to a formal problem-solving method gained mean scores greater than those of the students of the experimental group who had been exposed to such a method but that the differences between the two groups were not statistically significant on the WGCTA. William (1981) too concluded that the differences between the experimental and control groups in relation to critical thinking ability were not statistically significant. However, Al-Khayyatt (1980), reported a significant difference between groups taught by the inquiry and traditional methods in their achievement in the critical thinking test. Similarly, Massialas (1961) and Cox (1961) found that the experimental group showed a greater ability to think critically than the control group.

It is still possible to argue that the inquiry method has characteristics which enable students to use and develop their thinking skills, particularly critical thinking skills, because students can practise different procedures that make them more active than in the didactic approach. Teachers should be aware of helping their students to use their thinking skills generally, and to practise their critical thinking skills in particular. Further, they should provide an appropriate atmosphere for their students to

practise different activities e.g. raising questions, defining their problems, finding out answers or solutions and dealing with different kinds of materials and resources.

As mentioned earlier in the literature review, using the inquiry method may affect students' achievement and better reinforce their higher order thinking than the traditional approach. The findings of this study indicated that the inquiry method enabled students in the experimental group to obtain mean scores higher than the control group in the achievement test at the post- and postponed test stages (table 58 and 59). Students of the experimental group were found to be higher achievers than the control group. This may support the use of the inquiry method in teaching history to enable students to be more active and better achievers, and it may offer a significant and important indication that it is important to encourage and train teachers to look for methods of teaching that enable their students to better achieve, not just in acquiring a body of knowledge, but also in being able to make sense of that knowledge, having a meaningful learning experience, and becoming a more independent learner (Ehman, 1974).

When the data obtained from the fieldwork was analysed, the findings indicated that there was a difference in the achievement test results between students in the experimental group and those in the control groups at the time of pre-, post- and postponed tests as a whole. The difference between the two groups at the time of the pre-test was not statistically significant but the results of the post- and postponed tests were statistically significant. The mean of the experimental group taught by the inquiry method was higher than the mean of the control group taught by the traditional method. This indicates that the level of students in the experimental group improved after teaching the new programme by the inquiry method.

Students in the experimental group achieved greater than those in the control group in acquiring knowledge and comprehension and in the other abilities such as application, analysis, synthesis and evaluation and this also emphasises the advantages of the inquiry method in improving students' cognitive thinking. In addition, this



agrees with the findings in the literature review relating to high order thinking as mentioned in chapter two (Bruner, 1962, Lytton, 1971, Jones, 1979).

From the preceding analysis of the students' achievements, it can be seen that the students of the experimental group achieved more than the students of the control group in all questions at the time of the post-test and postponed test except question 8 which was about inferring some information from a certain passage. Despite that, the experimental group also achieved more than the control group in relation to question 8 at the time of the postponed test, and the improvement in the skills of the experimental group was generally more than those in the control group. Consequently, it can be seen that use of the new teaching programme that relied on the inquiry method increased the level of students' achievement in history. These differences between the two groups may attributed to the following points:

1. Using the new teaching programme developed skills according to the procedures of the inquiry method which involves identifying the problem, raising tentative hypotheses, collecting data and inferring conclusions or generalisations. The students therefore had to work in small groups and participate actively and effectively in the learning process. This approach is distinct from the traditional method in which the students are seen as receivers of knowledge and information.
2. Opportunities were given to students in the experimental group to think and to practise different kinds of cognitive skills, for example, comprehension, application, analysis, synthesis and evaluation.
3. The motivation factor which existed in applying the inquiry method: students learning through the inquiry method become quickly motivated through sharing with each other the excitement of finding solutions for themselves and dealing with different resources such as books, maps, pictures and transparencies. This is in comparison with the traditional method, where students had to wait until the end of the examination period or the end of the course to find out their results or receive marks and commendations from their

teachers (Trow, 1960). Bruner (1966), Sorenson (1964), and Hawley in Yelon et al (1977) indicated that students should be rewarded and motivated intrinsically rather than extrinsically in order to help them recognise and correct their own mistakes. This will make their learning faster, encourage their interest in the learning process and allow them to enjoy it, as discussed earlier in the literature review.

4. Using various kinds of resources in teaching history enables students to enjoy learning and generally achieve well in history during the semester.
5. Encouraging students to feel free and making them active throughout the lesson time by applying new procedures and giving them opportunities to deal with different aspects of learning such as 'working in small groups'. This enabled them to share their views, discuss and find out the answers by using different references in addition to the prescribed textbook in history. Applying such procedures will enable students to achieve well, to have a positive attitude regarding the teaching and learning process and to use their thinking skills.

It seems to the researcher that all five points are valid and should be considered by other researchers, teachers and curriculum planners. Further, points 3, 4 and 5 are the most significant factors supported by the results of the present study. Moreover the findings given above regarding the achievement test agreed with Massialas (1961), Elsmere (1961), Peterson (1980), Chermak (1981), Al-Khayyatt (1980), Khalaf (1984), El-Kilzah (1989) and Saadah (1984) in the differences between the experimental and control groups in relation to the achievement test whether at the time of the post-test or postponed test. In addition there is also an agreement between the results of the present study and the study undertaken by Kamal (1990) who found a significant difference between the experimental and control groups when taught by various teaching methods such as discussion, recitation and inquiry in the achievement test at the time of the post-test and postponed test. This study contradicts the study of Cox (1961) who found no difference between students of the



experimental group (problem-solving) and the control group (traditional method) in their achievements in a standardized test.

## **6.4 Critiques**

This section reviews some of the strengths and weaknesses of the present study from the researcher's viewpoint.

### **6.4.1 The Strengths of the Study**

The strengths of the current study are presented as follows:

#### *a. In relation to the investigation of History Teaching*

- This study reviewed some of the historical bases of the traditional and inquiry methods, their advantages and disadvantages as applied to the content and process of history teaching in Saudi Arabia.
- As far as the researcher can be sure, this study is the first to investigate the effectiveness of the traditional and inquiry methods in teaching history in Saudi Arabia in the first year of secondary stage.
- This research gives an indication of the feasibility of trying different types of history teaching, not just the traditional method, but also the inquiry method, project method and activity method that depend on students' increased involvement. This might bring about changes or improvement in pupils' attainments and attitudes to history.

#### *b. In relation to researching this field*

- In this study, the survey and the experiment were carefully defined. Using similar procedures in selecting other populations and samples may help to generalize the findings to the whole population in Saudi Arabia.
- By establishing different instruments e.g. students' attitudes questionnaire, achievement test and critical thinking test, it was possible to explore different aspects of the effect of the inquiry and traditional methods.

- Using the new teaching programme based on the inquiry method was considered an innovation in Saudi Arabia.
- The use at same time of a variety of different educational resources including maps, audio cassettes, pictures, handouts and transparencies was to some extent innovative because the students were accustomed to using only one resource, i.e. maps.
- Using a variety of different books and references beyond the prescribed textbook in teaching the new programme in history, gave the students the opportunity to apply different procedures for the first time.
- Different assignment procedures should be followed not only those of answering questions but also writing essays, reading some chapters on different topics that related to the lessons, collecting pictures and answering different types of questions.
- The high level of co-operation and help from the headteachers and the history teachers in the secondary schools enabled the researcher to deal with all students in a comfortable manner.

*c. In relation to Saudi Arabia*

- Most studies previously conducted in Saudi Arabia have used one instrument (questionnaire or interview), whereas the present study used three instruments i.e. students' attitudes questionnaire SAQ, Modified Watson-Glaser Critical Thinking Appraisal MWGCTA and achievement test AT. This enabled the researcher to explore comparisons between different variables and to support the findings of the experiment with the survey data, besides making the findings more reliable.

In addition to these strengths, the present research also contained some weaknesses.



## **6. 4. 2 Weaknesses of the Study**

Some of the weaknesses or difficulties and obstacles may be identified as follows:

- Students were unfamiliar with the inquiry method.
- It seems that the period of teaching the new programme was too short to enable the students to develop different attitudes towards some of the items in the students' attitudes questionnaire SAQ. It may be noted that the researcher as an outsider was not allowed to spend a long time in the schools, as teachers had to complete their curriculum.
- It appears that teaching the new programme through the inquiry method for ten weeks was not long enough to develop students' skills in the Modified Watson-Glazer Critical Thinking Appraisal MWGCTA. This was the first time they had dealt with this kind of test. Cultural differences may be another factor. It may not be appropriate to use the test in the future.
- The long-term familiarity with, and dependence of, students on the traditional method built up over their school life, may require the students to have time to become familiar with any change in the classroom. Further, their concern about passing the examination may prevent them from becoming fully involved.

There may, additionally, have been some factors restricting the complete success of the inquiry method:

- The necessity to prepare experienced, proficient teachers who have training in teaching different methods, and have a strong personality to control and guide students. The researcher arranged many sessions to train the history teacher to be able to teach students the new programme using the inquiry method. This may however, have been insufficient to permit effective use of the inquiry method.
- The time interval between the post- and postponed tests was too short to test students' retention of information, and the postponed tests were probably not useful.

- This study was applied to three classes in the first year of secondary school. Were the researcher to repeat the study, he would include more than three classes and in different schools in order to achieve greater generality and relevance.
- The questionnaire administered in this study was long, even though the researcher tried to reduce its length.
- Students were not asked to indicate the extent to which they like or disliked the authoritarian role of their teacher, nor whether they liked having a main role in the learning and teaching process, nor whether they liked their teacher acting as a guide and director.



## **6. 5. 1 Recommendations and Suggestions**

On the basis of the findings of this study, the following recommendations are presented for implementation. Some of these recommendations are addressed to the Saudi Arabian context, and some of them may be applied generally:

### *Recommendations for Teaching Methods*

- In relation to the use of different learning styles, and in order to enable students to participate in the learning process effectively and actively, it is recommended that teachers should make use of different kinds of the learning styles related to the inquiry method, encouraging students to work together in small groups, to listen to others' presentations, to formulate hypotheses, to derive material from many sources to work on a given problem or topic. Students should watch a video or listen to a tape and make notes, organize investigations on a given topic or problem, distinguish between strong and weak arguments, identify problems and devise ways of investigating them. It can be noted that whilst this recommendation can in theory be implemented in Saudi Arabian schools, some teachers will be resistant to any change in their programmes. It may be necessary for the Ministry of Education to establish an edict for the teachers to vary their teaching.
- Courses at colleges of education will need to be revised, presenting further detail about the effect of different teaching methods on students' learning and on developing their thinking skills by introducing the inquiry method. Characteristics of the method in teaching history in particular and in teaching social studies in general will need to be considered.
- It has been clear from the present study that students still like the traditional method and in order to make it more powerful and meaningful, it is recommended that it is improved by preparing it more carefully, using a greater variety of resources, practising different ways of asking questions, giving students more opportunity to ask questions and to find the answers by themselves and by

interacting with each other. This recommendation seems simple to implement if the Ministry of Education encourages teachers and gives them different guidelines.

#### *Recommendations to Use Different Materials*

- With reference to the importance of motivation, it is recommended that advantage be taken of the wide variety of different educational resources available to teaching history in particular, and to teaching other subjects generally. This could be done by equipping each school with different resources and facilities. These should include a variety of maps, transparencies, videos and pictures.
- As story and simulation have not been used frequently in history lessons, it is suggested that they are used more in history lessons to enable students to enjoy the lessons and to improve their problem-solving skills through studying past events.
- Providing a library that includes different types of historical books, stories and documents will give students the opportunities to practise scientific research and inquiry skills.
- Providing a historical room or museum would enable students to practise concrete skills.
- As history enables students to practise different skills of historical understanding, it is recommended that different types of historical evidence be used.

#### *Recommendations for Curriculum Development*

- Curriculum planners should remember that teaching historical facts in schools should be considered as a means not an end of teaching history. This may help to make history more beneficial to students.
- Curriculum planners should take into account that teaching history in schools should fulfil different purposes, not only in relation to social and cultural aspects but also in the use of thinking skills.



- Since the inquiry method needs more time than the traditional method it is recommended that the lesson time be increased from one session per week to two or three sessions per week.
- Providing a guidebook to the inquiry method giving teachers guidelines and instructions will help them to follow and use this method clearly and easily.
- All materials need to be improved in accordance with the procedures of the inquiry method, encouraging students to use their thinking skills. The teaching programme that has been built into this study (see appendix 7) may represent a basis for developing new materials in terms of the inquiry method.
- This study investigated students in the first year of secondary schools who were being prompted to think critically. To achieve this goal, curriculum makers should emphasize the importance of developing students' critical thinking skills by highlighting them in the curriculum objectives and in the prescribed textbooks.
- Curriculum makers should consider establishing different kinds of standardized tests in relation to critical thinking skills. These would serve as main devices to measure and evaluate students' levels of critical thinking skills in particular and thinking skills in general.
- Curriculum makers are recommended to take into account setting up criteria for constructing a history syllabus, for example, according to students' age, needs and aptitudes.
- Curriculum planners should take into account the advantages of acquiring experience of different countries throughout the world.
- In constructing a history syllabus curriculum planners should take into account the need for a balance between the past and present and between local, national and international history.
- Teachers should be included in the curriculum development because they are working in the field and they are the people best placed to know their students. This can be achieved by choosing some of the outstanding teachers to participate in the process of curriculum development or by sending to all teachers

questionnaires to encourage them to give their opinion about the difficulties of the syllabus, students learning etc.

- History teachers are encouraged to stress the benefit of studying past events to make a link between those events and the present or current affairs.

### *Recommendations for Teacher Training*

- There is a need to develop a variety of training programmes for history teachers in order to enable them to have more information and knowledge about the inquiry method. Such a programme may include: an introduction to its historical background, its definition, types, procedures and its advantages and disadvantages. Hopefully the literature review chapter may give the basic information about the inquiry method. Further information can be given through in-service special training programmes set up by the Ministry of Education itself or in co-operation with universities.
- It is recommended that social studies teachers are given more opportunities to attend different types of training programmes in teaching methods and how to develop their students' thinking skills and critical thinking skills. This can be implemented by preparing different in-service programmes for them.
- It is recommended that a society, group or community be established for all the social studies teachers through which they can pursue the latest developments in teaching methods, curriculum and educational technology fields, publish newsletters or specialized journals and hold regular meeting or sessions to discuss recent matters about teaching history in particular and in other subjects in general. This recommendation will need careful consideration about how best to achieve this objective and guidelines for its implementation will be essential.
- Any attempt by the teachers who try to vary their teaching methods should be encouraged by sending them a letter of thanks and appreciation, giving them allowances and reducing their load.



- The Ministry of Education should set up different workshops for history teachers to discuss some aspects of and new ideas about the nature of history and history teaching. This could be implemented through the Directorates of Education in all parts of Saudi Arabia.
- The Ministry of Education should give history teachers more opportunities to continue their higher degrees in history teaching.

### *Recommendations for Pupils*

- This study proved that students preferred group working so it is recommended that they are given more opportunities to work in groups to find out answers for their problems or queries and to discover the knowledge by themselves. In order to achieve that, it is of practical relevance to indicate at the end of each lesson some books and references which would enable them to practise the skills of the inquiry method. This would enable them to deal with different resources and practise different activities not just to memorize what has been written in the textbook. Further, giving the opportunities to students to work in groups enables them to discuss with each other, sharing their ideas and building a good social relationship. This recommendation may seem quite difficult because the Saudi school timetable is engaged by different subjects which makes revision difficult. However, in addition to giving more time to the teaching of history, the encouragement of the inquiry method in other subjects will help achieve the overall goal of helping students to participate actively and effectively in the learning process and develop their thinking skills.
- Because students in this study reported they preferred and enjoyed asking questions, it is recommended that they are given opportunities to ask questions and are directed to find out the answers. The Ministry of Education could encourage teachers to do so.
- It is recommended that students are helped to take advantage of history textbooks. Different skills can be developed, for example, note-making.

- Attempts should be made to strengthen the relationships between history teachers and their students in order to improve both the learning and teaching process.
- History teachers are recommended to help their students to apply their historical knowledge in their personal life especially given that the syllabus in the first year of secondary school is about the Prophet Mohammed.
- Students should be asked at the end of each school year about their attitudes toward history particularly and toward other subjects generally and their evaluation of the term should be taken into account. This can be done through the Ministry of Education constructing questionnaires and sending them to all schools throughout the country.

### **6. 5. 2 Suggestions for Future Research**

1. In order to increase the range of the results, to investigate their consistency, and to strengthen them, it is recommended that this study be replicated in other classrooms in more than one school to ascertain the differences between the effect of the inquiry and the traditional methods. The sample should include other regions of Saudi Arabia in order to explore the possibility of obtaining similar results with different teachers and different sampling and to explore any effect of different factors e.g. region and socio-economic status.
2. This research investigated the effect of the traditional and inquiry methods in the first year of secondary school. It is suggested that the same study should be repeated at the other stages, such as the second and third year of secondary school to ascertain the effect of these two methods on students' achievement, their critical thinking skills and their attitudes towards history and to explore any difference in the light of students' age.
3. A similar study should be carried out at the elementary and preparatory stages, to investigate the effect of the two methods on student achievement, on their critical thinking skills and on their attitudes towards history at these stages, and to address



the extent to which the inquiry method is suitable for teaching in these stages, for example, in the light of students' age.

4. This research, conducted with boys in secondary schools, should be conducted with girls in secondary schools to investigate the effect of the inquiry and the traditional methods on girls' achievement, their critical thinking skills and their attitudes towards history in order to investigate the effect of gender.
5. With reference to insignificant differences between students of the experimental and control groups in most of the items that related to their attitudes towards history, there is a need for research that includes only more selective questions on the students' attitude questionnaire to be applied at the time of the pre-test and then again after a long delay (maybe two terms), at the time of the post-test, in order to investigate students' feeling over a longer period.
6. This study should be replicated including a longer delay (maybe a year or more) between conducting the post-test and postponed test. This will evaluate students' retention of information over a longer period of time.
7. Students in this study reached a satisfactory level of achievement in critical thinking skills as measured by the Modified Watson-Glazer Critical Thinking Appraisal. It is suggested, therefore, that the critical thinking skills of a large population and in different areas of Saudi Arabia be investigated using different measures of critical thinking, or even building a new test reflecting Saudi students' culture. This could investigate students' performance or attainment in relation to high order thinking such as analysis, synthesis and evaluation in history or other subjects by using different teaching methods. This might test the extent to which history as a subject is able to develop students thinking skills.
8. The same study could be replicated in different subjects, for example geography, to investigate the effect of the traditional method in comparison with the inquiry method on different aspects of the subject.

9. The same study could be replicated in different areas of the world to explore the similarities and differences between students in Saudi Arabia in comparison with students the world over.
10. An experimental study could be conducted, using different, more precise instruments, such as observation and tape recording, in order to determine what is occurring inside the classroom.
11. To explore students' understanding of historical concepts, it is suggested that a study is made of the ability of Saudi students to acquire and understand concepts.

In summary, it is clear from this study that some claims can be made for using different teaching methods to enable students to use their thinking skills instead of insisting that they simply accumulate masses of information through the didactic method. As we have seen in Saudi Arabia the traditional method is still widespread at all stages in the schools. This study explored the advantages of using the inquiry method in developing students' thinking skills and encouraging them to achieve well.

This study addressed the importance of studying history in schools and using different teaching methods and this should be borne in mind by the curriculum planners and teachers. It is clear that motivation plays a central role in stimulating students to be willing to learn and participate in class activities.

There is still a need to continue the development and improvement of teaching methods in schools. Indeed, caring for the learning and teaching process should not be confined only to the teaching methods but should include all the educational elements such as teachers, students, curriculum, teaching resources and school buildings. As teaching is considered a respected profession, teachers should recognize their role in influencing their students. This emphasises the importance of using different teaching methods to meet students' desires and aptitudes.



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## **Appendix (1)**

### **The Objectives of Education in Saudi Arabia**

The educational policy has defined a set of general objectives for education which possess the following key features:

1. Developing the spirit of allegiance toward Islamic laws.
2. Preaching the book of ALLAH (Quran) and the law of his messenger by maintaining, taking care of, teaching and acting according to their commands.
3. Supplying the individual with good and necessary ideas, feelings, and powers that help him to carry the message of Islam.
4. Promoting Quranic morals in Muslims and emphasising the moral limitations in using knowledge.
5. Educating the citizen to be a good *adobe* or brick in building his nation and to feel his responsibility for serving and defending his country.
6. Supplying students with a suitable amount of cultural information and educational experiences to make them an active members of society.
7. Promoting students' awareness of the social, economic and cultural problems in their society and providing them with the abilities to contribute to their solution.
8. Emphasising the dignity of individuals and giving them suitable opportunities to develop abilities which help to contribute to the advancement of the nation.
9. Studying all great and strange things in the universe at large and discovering the secrets of the creator to benefit the students in serving Islam and the dignity of the nation.
10. Explaining the perfect conformity of science and religion in the Islamic law.
11. Establishing the methodological Islamic thought in individuals to enable them to integrate Islamic concepts in relation to the universe, humankind, existence and all their aspects.
12. Promoting the level of psychological health by introducing tranquillity into a student's soul and providing him with an appropriate context for this in school.



13. Encouraging and developing scientific thinking and research to strengthen students' observation, contemplation and enlightenment regarding Allah's miracles in the universe and helping students to realise his wisdom in his creation to enable them to play an effective role in building society and guiding the direction of its development.
14. Addressing international accomplishments in permitted fields such as science, literature and art, and illustrating the contributions of Muslim scientists.
15. Developing mathematical thinking and arithmetic skills and training students to use the language of figures in scientific and practical fields.
16. Developing reading skills for enlarging knowledge.
17. Acquiring the ability for correct expression in speaking and writing, with sound language and systematic thought.
18. Developing linguistic ability in various ways that reinforce the Arabic language and enable students to appreciate its beauty of style and ideas.
19. Teaching history methodically in order to give examples and to explain the viewpoint of Islam. Besides displaying the immortal situations in the history of Islam and its nation's civilisation to be an example for the Muslim generations and to try to build their confidence and positiveness.
20. Enlightening students with the time-honoured Islamic glory of their locality, the deep-rooted international human civilisation and its economic, natural and geographic characteristics, besides its important position among the world states.
21. Understanding all different kinds of environment and developing students' awareness of the various states of the world and the natural resources and products of every state, stressing the countries resources, raw materials, economic and geographic centres. Additionally, addressing the leading political role of Saudi Arabia in the safekeeping of Islam and emphasizing its position in the Islamic world.
22. Supplying students with at least one other language besides their native one in order for them to acquire knowledge of science, art and useful inventions, and

transmitting knowledge and science to other parts of the world for disseminating Islam and serving human beings.

23. Accustoming students to healthy habits and spreading health awareness.
24. Developing students' motor skills based on the rules of good physical health for building a sound body, which will help them to accomplish their duties in serving their religion and society well and consistently.
25. Keeping pace with the psychological growth of younger people, helping the individual to grow spiritually, mentally, emotionally and socially and keeping the spirit of Islam.
26. Knowing individual differences between students and helping them to grow in accordance with their abilities, aptitudes and interests.
27. Addressing the academic progress of students with special needs and planning temporary and permanent special programmes to meet their needs.
28. Providing special education for those who are mentally and physically handicapped in accordance with the guidelines of Islam which make education a common right for all members of a nation.
29. Paying attention to discovering the talents of students, giving them opportunities to enable their gifts to grow in the framework of general programmes, and planning special programmes.
30. Training manpower and paying special attention to vocational education.
31. Implanting the zeal of work in the hearts of students, developing it in all its forms and stressing the importance of work in building the nation through the following procedures:
  - A - Developing students' scientific skills and paying attention to practical work in school that allows students to undertake manual arts activities, enabling them to have experience of laboratories, workshops and in the field.
  - B - Studying scientific basics in different areas to help students reach the level of invention and advancement.



32. Building strong relations between the members of Islam and displaying the unity of its nation.

Thus, it seems that education in Saudi Arabia is trying to give opportunities to all Saudi students to join and enter schools willingly in order to participate in the building of their country.

**Appendix (2)**

**STUDENTS' ATTITUDES QUESTIONNAIRE**

**Prepared By**

**MOBARAK S. N. H. AL-SHAHRANI**



## **" Students' Attitudes towards History in Schools"**

Dear Student :

I am conducting research into History in Secondary Schools. Part of the study is this QUESTIONNAIRE. It is designed to ask you your opinions of different aspects of History Teaching in Schools . There are no "right" or "wrong" answers in this questionnaire as it is asking for your opinions of and attitudes to History. It also asks you for some factual details. The instructions for how to answer are given for each question . Please read each instruction CAREFULLY.

You do not need to put your name on this questionnaire and all the information will be treated anonymously . Please be as honest as you can in your answers to the questions .

Thank you for your co-operation in this.

M. AL-SHAHRANI.

Postgraduate student

(1) Identifier . Please leave BLANK .

1-3

(2) Type of school. Please tick ONE box only:

School in city.

☐

4

School in village.

☐

(3) Father's Occupation. Please tick ONE box only:

Teacher.

☐

1

Employer.

☐

2

Salesman.

☐

3

Manual Worker.

☐

4

Businessman.

☐

5

Agricultural Worker.

☐

6

Military.

☐

7

Doctor.

☐

8

Other.

☐

9

5

(4) Mother's Occupation. Please tick ONE box only:

Housewife.

☐

1

Teacher.

☐

2

Nurse.

☐

3

6

(5) What is your intended specialisation in school?

Please tick MORE THAN one box if you wish.

Islamic Studies.

☐

Educational Studies.

☐

Science Studies.

☐

Arts Studies.

☐

Humanities.

☐

Languages.

☐

7



(6) Please put a tick in the box that best describes your grades in the following subjects ( LAST YEAR ): Poor, Acceptable, Good, Very Good, Excellent.  
Please tick ONE box only for each subject.

	Poor 1	Acceptable 2	Good 3	Very good 4	Excellent 5	
History						8
Geography						9
Science						10

(7) Please enter figures to show how many hours per week you spend on the following subjects AT HOME. Do not give fractions of an hour.

	Hours								
	1	2	3	4	5	6	7	8	
History									11-12
Geography									13-14
Science									15-16

(8) What is generally your preferred learning style?  
Please tick in ONE box only for each style.

	hardly at all	1	a little 2	reasonably 3	a lot 4	very much 5	
1 Teacher talks/ lectures.							17
2 Students make generalizations.							18
3 Students ask questions.							19
4 Students present work to the group							20
5 Students listen to others' presentations.							21
6 Students make interpretations.							22
7 Students formulate hypothesis.							23
8 Watch a video or listen to a tape and make notes.							24
9 Discussion in small groups.							25
10 Class discussion led by teacher.							26
11 Students derive material from many sources to work on a given problem investigation or topic.							27
12 Students organize an investigation on a given topic or problem.							28
13 Students infer from given information.							29
14 Students draw conclusions.							30
15 Students distinguish between strong and weak arguments.							31
16 Students identify the problem and devise ways of investigating it.							32

IF you have any comments or suggestions please state them here.



(9) FOR HISTORY:

How often are these styles used in History lessons?

Please put a tick in ONE box only for each style.

	hardly at all	1	a little 2	reasonably 3	a lot 4	very much 5	
1 Teacher talks/ lectures.							33
2 Students make generalizations.							34
3 Students ask questions.							35
4 Students present work to the group							36
5 Students listen to others' presentations.							37
6 Students make interpretations.							38
7 Students formulate hypothesis.							39
8 Watch a video or listen to a tape and make notes.							40
9 Discussion in small groups.							41
10 Class discussion led by teacher.							42
11 Students derive material from many sources to work on a given problem, investigation or topic.							43
12 Students organize an investigation on a given topic or problem.							44
13 Students infer from given information.							45
14 Students draw conclusions.							46
15 Students distinguish between strong and weak arguments.							47
16 Students identify the problem and devise ways of investigating it.							48

IF you have any comments or suggestions please state them here.

(10) FOR GEOGRAPHY:

How often are these styles used in Geography lessons?

Please put a tick in ONE box only for each style.

	hardly at all	1	a little 2	reasonably 3	a lot 4	very much 5	
1 Teacher talks/ lectures.							49
2 Students make generalizations.							50
3 Students ask questions.							51
4 Students present work to the group							52
5 Students listen to others' presentations.							53
6 Students make interpretations.							54
7 Students formulate hypothesis.							55
8 Watch a video or listen to a tape and make notes.							56
9 Discussion in small groups.							57
10 Class discussion led by teacher.							58
11 Students derive material from many sources to work on a given problem investigation or topic.							59
12 Students organize an investigation on a given topic or problem.							60
13 Students infer from given information.							61
14 Students draw conclusions.							62
15 Students distinguish between strong and weak arguments.							63
16 Students identify the problem and devise ways of investigating it.							64

IF you have any comments or suggestions please state it here.



(11) FOR SCIENCE:

How often are these styles used in Science lessons?

Please put a tick in ONE box only for each style.

	hardly at all	1	a little 2	reasonably 3	a lot 4	very much 5	
1 Teacher talks/ lectures.							65
2 Students make generalizations.							66
3 Students ask questions.							67
4 Students present work to the group							68
5 Students listen to others' presentations.							69
6 Students make interpretations.							70
7 Students formulate hypothesis.							71
8 Watch a video or listen to a tape and make notes.							72
9 Discussion in small groups.							73
10 Class discussion led by teacher.							74
11 Students derive material from many sources to work on a given problem investigation or topic.							75
12 Students organize an investigation on a given topic or problem.							76
13 Students infer from given information.							77
14 Students draw conclusions.							78
15 Students distinguish between strong and weak arguments.							79
16 Students identify the problem and devise ways of investigating it.							80

IF you have any comments or suggestions please state them here.

(12) To what extent do the following learning styles affect your enjoyment of HISTORY?  
 Please put a tick in ONE box only for each style.

	hardly at all	1	a little 2	reasonably 3	a lot 4	very much 5	
1 Teacher talks/ lectures.							81
2 Students make generalizations.							82
3 Students ask questions.							83
4 Students present work to the group							84
5 Students listen to others' presentations.							85
6 Students make interpretations.							86
7 Students formulate hypothesis.							87
8 Watch a video or listen to a tape and make notes.							88
9 Discussion in small groups.							89
10 Class discussion led by teacher.							90
11 Students derive material from many sources to work on a given problem investigation or topic.							91
12 Students organize an investigation on a given topic or problem.							92
13 Students infer from given information.							93
14 Students draw conclusions.							94
15 Students distinguish between strong and weak arguments.							95
16 Students identify the problem and devise ways of investigating it.							96

IF you have any comments or suggestions please state them here.



(13) To what extent do the use of the following resources affect your enjoyment of History?  
Please put a tick in ONE box only for each resource.

	hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5	
1 books.						97
2 documents						98
3 video.						99
4 television.						100
5 audio cassette.						101
6 pictures.						102
7 maps						103
8 transparencies.						104

(14) Please put a tick in ONE box only on each line to describe your teacher in History lessons.

	1	2	3	4	5		
1 unhelpful						helpful	105
2 careless						careful	106
3 unco-operative						co-operative	107
4 inflexible						flexible	108
5 aloof						responsive	109
6 weak direction						strong direction	110
7 unfriendly						friendly	111
8 not enthusiastic						enthusiastic	112
9 dismissive						amenable	113

(15) Please put a tick in ONE box only to indicate how much the curriculum content affects your enjoyment of History.

hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5	
					114

(16) To what extent do the following learning styles affect your enjoyment of GEOGRAPHY?  
Please put a tick in ONE box only for each style.

	hardly at all	1	a little 2	reasonably 3	a lot 4	very much 5	
1 Teacher talks/ lectures.							115
2 Students make generalizations.							116
3 Students ask questions.							117
4 Students present work to the group							118
5 Students listen to others' presentations.							119
6 Students make interpretations.							120
7 Students formulate hypothesis.							121
8 Watch a video or listen to a tape and make notes.							122
9 Discussion in small groups.							123
10 Class discussion led by teacher.							124
11 Students derive material from many sources to work on a given problem investigation or topic.							125
12 Students organize an investigation on a given topic or problem.							126
13 Students infer from given information.							127
14 Students draw conclusions.							128
15 Students distinguish between strong and weak arguments.							129
16 Students identify the problem and devise ways of investigating it.							130

IF you have any comments or suggestions please state them here.



(17) To what extent do the uses of the following resources affect your enjoyment of GEOGRAPHY?  
Please put a tick in ONE box only for each resource.

	hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5	
1 books.						131
2 documents						132
3 video.						133
4 television.						134
5 audio cassette.						135
6 pictures.						136
7 maps						137
8 transparencies.						138

(18) Please put a tick in ONE box only on each line to describe your teacher in Geography lessons.

	1	2	3	4	5		
1 unhelpful						helpful	139
2 careless						careful	140
3 unco-operative						co-operative	141
4 inflexible						flexible	142
5 aloof						responsive	143
6 weak direction						strong direction	144
7 unfriendly						friendly	145
8 not enthusiastic						enthusiastic	146
9 dismissive						amenable	147

(19) Please put a tick in ONE box only to indicate how much the curriculum content affects your enjoyment of Geography.

hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5	
					148

(20) To what extent do the following learning styles affect your enjoyment of SCIENCE?

Please put a tick in ONE box only for each style.

	hardly at	a little	reasonably	a lot	very much		
	all	1	2	3	4	5	
1 Teacher talks/ lectures.							149
2 Students make generalizations.							150
3 Students ask questions.							151
4 Students present work to the group							152
5 Students listen to others' presentations.							153
6 Students make interpretations.							154
7 Students formulate hypothesis.							155
8 Watch a video or listen to a tape and make notes.							156
9 Discussion in small groups.							157
10 Class discussion led by teacher.							158
11 Students derive material from many sources to work on a given problem investigation or topic.							159
12 Students organize an investigation on a given topic or problem.							160
13 Students infer from given information.							161
14 Students draw conclusions.							162
15 Students distinguish between strong and weak arguments.							163
16 Students identify the problem and devise ways of investigating it.							164

IF you have any comments or suggestions please state them here.



(21) To what extent do the uses of the following resources affect your enjoyment of SCIENCE?  
Please put a tick in ONE box only for each resource.

	hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5
1 books.					
2 documents					
3 video.					
4 television.					
5 audio cassette.					
6 practical equipment					
7 pictures.					
8 maps					
9 transparencies.					

165
166
167
168
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171
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173

(22) Please put a tick in ONE box only on each line to describe your teacher in Science lessons.

	1	2	3	4	5	
1 unhelpful						helpful
2 careless						careful
3 unco-operative						co-operative
4 inflexible						flexible
5 aloof						responsive
6 weak direction						strong direction
7 unfriendly						friendly
8 not enthusiastic						enthusiastic
9 dismissive						amenable

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182

(23) Please put a tick in ONE box only to indicate how much the curriculum content affects your enjoyment of Science lessons.

hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5

183
-----

(24) To what extent do you enjoy the following subjects?  
Please put a tick in ONE box only per subject.

	hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5
History					
Geography					
Science					

184
185
186

(25) How far would you be interested in trying the following learning styles.

	hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5
1 Students work in pairs or small groups.					
2 Students prepare essays alone.					
3 Students prepare essays in groups.					
4 Students make notes from books.					
5 Research a topic/ project using a library.					
6 Teacher dictates notes.					

187
188
189
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192

For each of the following resources please indicate how much they are used in the subjects listed.  
Please put a tick in ONE box only per resource.

(26) FOR HISTORY

	hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5
1 books.					
2 documents.					
3 video.					
4 television.					
5 audio cassette.					
6 pictures.					
7 maps.					
8 transparencies.					

193
194
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196
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200



(27) FOR GEOGRAPHY

- 1 books.
- 2 documents.
- 3 video.
- 4 television.
- 5 audio cassette.
- 6 pictures.
- 7 maps.
- 8 transparencies.

hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5

201
202
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208

(28) FOR SCIENCE

- 1 books.
- 2 documents.
- 3 video.
- 4 television.
- 5 audio cassette.
- 6 practical equipment
- 7 pictures.
- 8 maps.
- 9 transparencies.

hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5

209
210
211
212
213
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216
217

(29) How important do you think the following subjects are?

Please put a tick only for each subject.

- History.
- Geography.
- Science.

hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5

218
219
220

Please indicate in the following section WHY subjects might be important and HOW important the reasons are.

FOR EXAMPLE: IN SCIENCE you might answer it as following:

	not at all	very little	a little	a lot of	very
	important	importance	important	importance	important
to get good jobs.		✓			
to get by in life.				✓	

(30) FOR HISTORY:

	not at all	very	a little	a lot of	very
	important	importance	important	importance	important
1 to get good jobs.					
2 to get by in life.					
3 for enjoyment.					
4 to gain qualifications.					
5 to gain social status.					
6 to take part in cultural life.					
7 to act on parental advice.					
8 to act on friends' advice.					

221
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228

(31) FOR GEOGRAPHY:

1 to get good jobs.				
2 to get by in life.				
3 for enjoyment.				
4 to gain qualifications.				
5 to gain social status.				
6 to take part in cultural life.				
7 to act on parental advice.				
8 to act on friends' advice.				

229
230
231
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236



(32) FOR SCIENCE:

1 to get good jobs.

2 to get by in life.

3 for enjoyment.

4 to gain qualifications.

5 to gain social status.

6 to take part in cultural life.

7 to act on parental advice.

8 to act on friends' advice.


237
238
239
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244

(33) How easy do you find the following subjects generally?

Please put a tick in ONE box only per subject.

very easy      easy      sometimes      hard      very hard

easy/hard

History.

Geography.

Science.


245
246
247

(34) Do you intend to take the following subjects at higher education?

YES      NO

History.

Geography.

Science.


248
249
250

(35) How easy do you find it to memorize and remember material in the following subjects?

Please put a tick in ONE box only per subject.

very easy      easy      sometimes      hard      very hard

easy/hard

History.

Geography.

Science.


251
252
253

For the following questions please put a tick in ONE box only for each question:

	hardly at all 1	a little 2	reasonably 3	a lot 4	very much 5	
(36) How much of an expert do you feel your history teacher is in his knowledge of history?						254
(37) How much do you like your history teacher?						255

IF you have any comments or suggestions please state them here.



(11) PLEASE LEAVE THIS ITEM BLANK :

History	1 hour
Geography	1 hour
Science	6 hours

256
257
258

### **Appendix (3)**

**The Names of the Members of the Jury Validity at the School of Education in Durham University and at Colleges of Education in Riyadh and Abha in Saudi Arabia**



**Appendix (3) The Names of the Members of the Jury Validity of the SAQ at the School of Education in Durham University and in Saudi Arabia**

The Names of the Members of the Jury Validity of the SAQ at the School of Education in Durham University

No.	Names
1	Dr. Booth
2	Dr. Peter Millward
3	Dr. Mike Byram
4	Mr. Jack Gilliland

The Names of the Members of the Jury Validity of the SAQ, AT, MWGCTA and the Teaching Programme in Saudi Arabia

No.	Names	Position
1	Dr. Sir AlKhatim Osman Ali	Associative professor, College of Education, King Saud University in Riyadh.
2	Dr. Ali Khidr	Associative Professor, College of Education, King Saud University, Abha Branch.
3	Dr.Mansour Ahmed	Associative Professor, College of Education, King Saud University, Abha Branch.
4	Dr. Saeed Saeed Hamdan	Assistant Professor, College of Education, King Saud University, Abha Branch.
5	Dr. Salim Al-Qatani	Assistant Professor, College of Education, King Saud University, Abha Branch.
6	Dr. Kamal Dourah	Assistant Professor, College of Education, King Saud University, Abha Branch.
7	Dr. Tariq Sankri	Lecturer, College of Education, King Saud University, Abha Branch.
8	Mahir Al-Ubaid	Inspector, The Educational Directorate of Abha.
9	Ahmed Motaeb	Inspector, The Educational Directorate of Abha.
10	Marwan	Inspector, The Educational Directorate of Abha.
11	Nasser Saeed Hamdan	Deputy Headteacher, The Educational Directorate of Abha.
12	Mohamed Amer	Social Studies Teacher, The Educational Directorate of Abha.
13	Oad Al-Sarhani	Social Studies Teacher, The Educational Directorate of Abha.
14	AbdulRahman Abu-Magaeer	Social Studies Teacher, The Educational Directorate of Abha.

**Appendix (4, 5) Modified Watson-Glazer Critical Thinking Appraisal and  
the Answer Sheet**

**MODIFIED WATSON-GLAZER CRITICAL THINKING  
APPRAISAL**

**Modified By**

**MOBARAK S. N. H. AL-SHAHRANI**



**Modified Watson-Glaser Critical Thinking Appraisal**

Dear Student:

I am conducting research into History in Secondary Schools. Part of the study is this TEST. It will measure your Critical Thinking Ability. Here are many questions in different fields. The instructions for how to answer are given for each question. Please read each instruction CAREFULLY. All the information will be treated anonymously. Please be as honest as you can in your answers to the questions.

Thank you for your co-operation in this.

M. AL-SHAHRANI.

Postgraduate Student

## TEST 1: INFERENCE

### INSTRUCTIONS :

An inference is a conclusion that a person can draw from certain observed or supposed facts.

For example, if the lights are on in a house and a radio can be heard coming from the house, a person might infer that someone is at home. But this inference may or may not be correct. It is possible that the people of the house did not turn off the light and the radio when they left the house.

In this test, each exercise begins with a statement of fact that you are to regard as true. After each statement of fact you will find several possible inferences, i.e., conclusions that some persons might draw from the stated facts. Examine each inference separately, and make a decision as to its degree of truth or falsehood.

For each inference you will find spaces on the *answer sheet* labelled T, PT, ID, PF, F. For each inference put a cross on the answer sheet under the appropriate heading as follows:

T if you think the inference is definitely TRUE; that it properly follows beyond a reasonable doubt from the statement of fact given.

PT if, in the light of the facts given, you think the inference is PROBABLY TRUE; that it is more likely to be true than false.

ID if you decide that there are INSUFFICIENT DATA; that you cannot tell from the facts given whether the inference is likely to be true or false; if the facts provide no basis for judging one way or the other.

PF if, in the light of the facts given, you think the inference is PROBABLY FALSE; that it is more likely to be false than true.

F if you believe the inference is definitely FALSE; that it is wrong, either because it misinterprets the facts given, or because it contradicts the facts or necessary inferences from those facts.



Sometimes, in deciding whether an inference is probably true or probably false, you will have to use commonly accepted knowledge or information that practically every person has.

Now look at the example below; the correct answers are indicated in the box .

In the exercises that follow, more than one of the inferences from a given statement of fact may be true (T), or false (F), to probably true (PT), or probably false (PF), or there may be insufficient data (ID), to warrant any conclusion. You are to judge each inference independently.

**EXAMPLE:**

**Statement:**

Two hundred school pupils in their teens voluntarily attended a recent weekend student conference in a certain city. At this conference, the topics of race relations and means of achieving lasting world peace were discussed, since these were the problems that the pupils selected as being most vital in today's world.

**Proposed Inferences:**

1. As a group, the pupils who attended this conference showed a keener interest in broad social problems than do most other people in their early teens.

(PT, because, as is common knowledge, most people in their early teens do not show so much serious concern with broad social problems. It cannot be considered definitely true from the facts given because these facts do not say how much concern other young teenagers may have. It is also possible that some of the pupils volunteered to attend mainly because they wanted a weekend outing.)

2. The majority of the pupils had not previously discussed the conference topics in the schools. (PF, because the pupils' growing awareness of these topics probably stemmed at least in part from discussions with teachers and classmates.)

3. The pupils came from all parts of the country.

(ID, because there is no evidence for this inference.)

4. The pupils discussed mainly industrial relations problems.

(F, because it is given in the statement of fact that the topics of race relations and means of achieving world peace were the problems chosen for discussion.)

5. Some teenage pupils felt it worthwhile to discuss problems of race relations and achieving world peace.

(T, because this inference follows from the given facts; therefore it is true.)

The answer to the example					
	T	PT	ID	PF	F
1		O			
	T	PT	ID	PF	F
2				O	
	T	PT	ID	PF	F
3			O		
	T	PT	ID	PF	F
4					O
	T	PT	ID	PF	F
5	O				



## EXERCISE ONE

### Statement:

A History teacher arranged for the pupils in one of his classes to see the film about the unity of the Kingdom of Saudi Arabia by King Abdulaziz while the pupils in all of his other history classes studied the book itself, without seeing the film. He wanted to know whether films could be used effectively in the teaching of history. Tests to check on appreciation and understanding of the story were given immediately after each type of instruction. The class that saw the film in all tests did better. This class became so interested in this subject before the term was over, that most of the pupils in the class chose to read the book entirely on their own initiative. The teacher felt his experiment was a success.

### Proposed Inferences:

1. The tests given in this experiment were intended to measure more than just recall of facts about the book.
2. The pupils who were taught with the aid of the film were required to read the book at the beginning of the term .
3. Other History teachers trying this experiment with their pupils would get similar results.
4. The teacher who conducted the study will continue to use films as a teaching strategy when it is feasible and suitable to do so.
5. There was no evidence that the class that saw the film understood or appreciated this subject more than the classes that read the book without seeing the film.
6. Pupils can learn more about most subjects from films than they can from books.

**Statement:**

A test was applied in a class at the intermediate stage to measure the extent to which students have the ability to memorize. The results of this test indicated that the students scored above average and it was clear that students who got high scores were superior to the rest of the class in all subjects.

**Proposed Inferences:**

7. Students cannot be successful except those who have a good ability to memorize.
8. There is a good relationship between a student's ability to memorize and his superiority.
9. We will get the same result if the same test is applied at the elementary stage.
10. A student who memorizes knowledge may forget it immediately after finishing the examination.
11. A student who has a good ability to memorize is considered intelligent.

**Statement:**

Many years ago, a certain city began taking ownership of farms lost by their owners who had not met official requirements. To date the city has set out some 3,600 km of community forest on some of this land. The palm trees have grown well. The city forest yielded the equivalent of S.R 100,000 net profit on wood last year and S.R 95,000 the year before. Local authorities believe that the net profit on the wood will continue to grow and eventually reach S.R 300,000 a year from just the present size of 3,600 km.

**Proposed Inferences:**

12. The city spends more on cutting and selling the wood than it gains from the sales.
13. If the individual owners had planted trees just before losing their farms, they would have made enough profit immediately from those trees to meet the requirements and retain their farms.
14. The city forest contains many varieties of marketable trees.
15. Under certain conditions, the city has the legal authority to take ownership of land from those who have not met official requirements.
16. The city forest will yield an annual net profit of S.R 300,000 from the present 3,600 km within two or three years.



## TEST 2: RECOGNITION OF ASSUMPTIONS

### INSTRUCTIONS :

An assumption is something presupposed or taken for granted. When you say, "I'll be a qualified engineer in two months", you take it for granted that you will be alive in two months, that you will pass the relevant examinations, etc.

Below are a number of statements. Each statement is followed by several proposed assumptions. You are to decide for each assumption whether a person, in making the given statement, is really making that assumption, i.e., taking it for granted, justifiably or not.

If you think that the given assumption is taken for granted in the statement, mark with a tick under "YES" in the space under "Assumption Made" on *the answer sheet*. If you think the assumption is not necessarily taken for granted in the statement, mark with a tick under "NO" in the space under "Assumption Made". Remember to judge each assumption independently. Below is an example. The box below shows how these items should be marked on the answer sheet. **EXAMPLE:**

Statement:

"We need to save time in getting there so we'd better go by plane."

Proposed assumptions:

1. Going by plane will take less time than going by some other means of transportation. (YES, it is assumed in the statement that the greater speed of a plane over the speeds of other means of transportation will enable the group to reach its destination in less time.)

2. There is a plane service available to us for at least part of the distance to the destination.

(YES, this is necessarily assumed in the statement since, in order to save time by plane, it must be possible to go by plane.)

3. Travel by plane is more convenient than travel by train.  
(NO, this assumption is not made in the statement- the statement has to do with saving time , and says nothing about convenience or about any other specific mode of travel.)

The answer to the example		
	Assumption Made	
	YES	NO
1	<input type="radio"/>	
	Assumption Made	
	YES	NO
2	<input type="radio"/>	
	Assumption Made	
	YES	NO
3		<input type="radio"/>

## EXERCISE TWO

Statement:

"There is not enough of everything to give all people what they want."

Proposed assumptions:

17. The supply of things that people want is not equal to the demand for all those things.
18. People should not expect to get something for nothing.

Statement:

"Since more and more school pupils plan to go on to university, many new university buildings must be constructed."

Proposed assumptions:

19. The number of university buildings that will be needed in the future depends on the plans of pupils with regard to higher education.
20. Existing university buildings are already overcrowded.
21. If students are to attend university, buildings must be available for them.

Statement:

"Many new sources of energy will be discovered, preventing future energy shortages."

Proposed assumptions:

22. Producing energy from new energy sources will not consume more energy than the sources yield.
23. The number of new energy sources is unlimited.
24. Once new sources of energy have been discovered, demand for energy will not exceed supply.



**Statement:**

**"There is greater progress in science, environmental protection and education when nations cooperate rather than work alone."**

**Proposed assumptions:**

- 25. If nations cooperate in these areas, they will avoid conflicts.**
- 26. Cultural and linguistic differences between peoples will not necessarily prevent them from working together on concerns common to all humanity.**
- 27. International cooperation in scientific and educational programmes will lead to flexibility and development.**

**Statement:**

**"If you don't believe me, I'll prove it to you logically."**

**Proposed assumptions:**

- 28. Logical proof will cause you to alter your belief about the matter under discussion.**
- 29. What I present as logical proof will influence your thinking.**
- 30. Some matters of belief cannot be proven by logic.**

**Statement:**

**"A wise man will save some money each week."**

**Proposed assumptions:**

- 31. No fools have sense enough to save some money each week.**
- 32. A person needs to be wise in order to save some money each week.**

### TEST 3: DEDUCTION

#### INSTRUCTIONS :

In this test, each exercise consists of statements (premises) followed by several suggested conclusions.

For the purpose of this test, consider the statements in each exercise as true without exception. Read the first conclusion beneath the statements. If you think it necessarily follows from the statements given, mark with a tick under "YES" in the space under "Conclusion Follows" on the *answer sheet*. If you think it is not a necessary conclusion from the statement given, mark with a tick under "NO" in the space under "Conclusion Follows", even though you may believe it to be true from your general knowledge. Similarly, read and judge each of the other conclusions. Try not to let your prejudices influence your judgement - just stick to the given statements (premises) and judge whether each conclusion necessarily follows.

The word "some" in any of the statements means an indefinite part or quantity of a class of things.

"Some" means at least a portion, and perhaps all of the class. Thus, "Some holidays are rainy" means at least one, possibly more than one, and perhaps even all holidays are rainy. Study the example carefully before starting the exercises.

#### EXAMPLE:

Statement:

Some holidays are rainy. All rainy days are boring. Therefore:

Proposed Conclusions:

1. No clear days are boring.  
(No, the conclusion does not follow. You cannot tell from the statements whether or not clear days are boring. Some may be.)
2. Some holidays are boring.  
(Yes, the conclusion necessarily follows from the statements since, according to them, the rainy holidays must be boring.)
3. Some holidays are not boring.  
(No, the conclusion does not follow, even though you may know that some holidays are very pleasant.)

The answer to the example		
1	Conclusion Follows	
	YES	NO
2		O
	Conclusion Follows	
3	YES	NO
	O	



### EXERCISE THREE

Statement:

An opinion not based on conviction is likely to give way before the slightest argument. Many of our opinions are not based on conviction but are carelessly adopted. Therefore:

Proposed Conclusions:

- 33. It is likely that we can be argued out of many of our opinions.
- 34. Many of our opinions are likely to give way before the slightest argument.
- 35. If a person's opinion was easily swayed by an argument, the opinion was not held with conviction.

Statement:

All great novels are works of art. All great novels capture our imagination. Therefore:

Proposed Conclusions:

- 36. Whatever captures our imagination is a work of art.
- 37. If "War and Peace" is a great novel, it will capture our imagination.
- 38. Our imagination can be captured by many kinds of art form.

Statement:

In a certain town in 1972, every person who contracted a serious case of measles was under ten years of age. No resident of the town who received the measles vaccine developed a serious case of measles that year. Therefore:

Proposed Conclusions:

- 39. Some children under ten years of age did not receive the measles vaccine.
- 40. The measles vaccine is more effective for adults than for children under ten years of age.
- 41. Some persons under ten years of age received the measles vaccine that year.

**Statement:**

In a certain country some people who favour higher budgets for schools are opposed to curriculum development. Only genuine friends of education are in favour of higher budgets for schools. Therefore:

**Proposed Conclusions:**

- 42. Some genuine friends of education are not in favour of curriculum development.
- 43. Some persons who favour curriculum development are not genuine friends of education.
- 44. A person cannot oppose curriculum development and be a genuine friend of education.

**Statement:**

All intelligent pupils are members of a diplomatic service. No normal pupil is intelligent.

**Therefore:**

**Proposed Conclusions:**

- 45. No member of a diplomatic service is a normal pupil.
- 46. Every intelligent pupil takes an active role in the service.
- 47. The normal pupil cannot be an active member of a diplomatic service.
- 48. Some members of a diplomatic service are abnormal pupils.

## TEST 4: INTERPRETATION

### INSTRUCTIONS :

Each of the following exercises consists of a short paragraph followed by several suggested conclusions.

For the purpose of this test, assume that everything in the short paragraph is true. The problem is to judge whether or not each of the proposed conclusions logically follows beyond a reasonable doubt from the information given in the paragraph. If you think that the proposed conclusion follows beyond a reasonable doubt (even though it may not follow absolutely and necessarily), mark with a tick under "YES" in the space under "Conclusion Follows" on the *answer sheet*. If you think that the conclusion does not follow beyond a reasonable doubt from the facts given, mark with a tick under "NO" in the space under "Conclusion Follows". Remember to judge each conclusion independently.

Look at the example below; the block at the left shows how the answers should be written on the answer sheet.



**EXAMPLE:**

**Statement:**

A study of vocabulary growth in children from eight months to six years old shows that the size of spoken vocabulary increases from 0 words at age eight months to 2,562 words at age six years.

**Proposed Conclusions:**

- 1. None of the children in this study had learned to talk by the age of six months.  
(YES,the conclusion follows beyond a reasonable doubt since, according to the statement, the size of the spoken vocabulary at eight months was 0 words.)
- 2. Vocabulary growth is slowest during the period when children are learning to walk.  
(No, the conclusion does not follow since there is no information given that relates growth of vocabulary to walking.)

The answer to the example		
Conclusion Follows		
	YES	NO
1	<input type="radio"/>	
Conclusion Follows		
	YES	NO
2		<input type="radio"/>

## EXERCISE FOUR

### Statement:

A certain salesman for a herbal lotion claimed that this product would promptly soothe sore muscles in the body by penetrating the affected parts. The salesman poured ten drops of the lotion on a thick piece of shoe leather, and the lotion quickly soaked through the leather.

### Proposed Conclusions:

- 49. The salesman demonstrated the healing powers of the product.
- 50. The salesman was implying that if the lotion could penetrate a thick piece of leather, it could penetrate sore muscles.
- 51. The salesman's demonstration was good evidence for the claim that the lotion would promptly soothe sore muscles in the body.

### Statement:

Of the 90,000 fourth and fifth year students in practical training in the country's secondary schools during a certain year, only 27,000 were studying science and only 18,000 mathematics.

### Proposed Conclusions:

- 52. In some secondary schools, science and mathematics were not compulsory for all fourth and fifth year pupils during that year.
- 53. One major reason for the fact that about half of that year's fourth and fifth year pupils did not study science and mathematics at school is that they would be studying them during their first and second years at college.
- 54. Some fourth and fifth year pupils in the country's secondary schools during the year in question were studying neither science nor mathematics.

### Statement

An international weekly magazine published a series of articles criticising the high incidence of birth control and divorce. The magazine was promptly banned from the libraries by the local council.

### Proposed Conclusions:

- 55. The council members believe that censorship is justified in some situations.
- 56. The magazine should not have published the series of articles.

### Statement:

A sleeping father was awakened by a dream that he had suffered a painful fall. Later that day his son returned from a fishing trip that he had taken alone in a rowing boat some miles away. His arm had been broken as the result of a fall in his boat. The father and his son did not see each other for a long time and they discovered that the accident and the dream had happened at exactly the same time.

### Proposed Conclusions:

- 57. No ordinary form of communication could account for the simultaneous occurrence of the father's dream and the son's accident .
- 58. The exact time that the father was awakened by his dream was noted.
- 59. The dream was a chance coincidence that was not really influenced by the accident.

### Statement:

One of the newspapers in a certain state made a survey of the number of drivers of small and big cars involved in all car accidents during a given period of time. They found that drivers of small cars were involved in 1,210 accidents while drivers of big cars were involved in only 920 accidents. Twenty per cent of the drivers in the survey were under thirty years of age.



**Proposed Conclusions:**

60. In a typical car accident in this state during the time covered by the survey, the driver was more likely to be driving a small car than a big car.
61. In this state survey, teenage drivers of small cars had more accidents than teenage drivers of big cars.

**Statement:**

At the end of the term, the pupils in Mr. Ahmed's class averaged 10 marks higher than the pupils in Mr. Ali's class in the same history test. Mr. Ahmed and Mr. Ali used somewhat different methods from each other in teaching history.

**Proposed Conclusions:**

62. Mr. Ahmed and Mr. Ali taught in the same school.
63. The pupils in Mr. Ahmed's class were brighter as a group than the pupils in Mr. Ali's class.
64. The method of teaching used by Mr. Ahmed was superior to the method used by Mr. Ali.

## TEST 5: EVALUATION OF ARGUMENTS

### INSTRUCTIONS :

In making decisions about important questions, it is desirable to be able to distinguish between arguments that are strong and arguments that are weak, as far as the question at issue is concerned. For an argument to be strong, it must be both important and directly related to the question.

An argument is weak if it is not directly related to the question (even though it may be of great general importance), or if it is of minor importance, or if it is related only to trivial aspects of the question.

Below is a series of questions. Each question is followed by several arguments.

For the purpose of this test, you are to regard each argument as true. The problem then is to decide whether it is a strong or a weak argument.

Mark with a tick under "STRONG" on the *answer sheet* under "Argument" if you think the argument is strong, or under "WEAK" if you think the argument is weak.

Judge each argument separately on its own merit. Try not to let your personal attitude toward the question influence your evaluation of the argument, since each argument is to be regarded as true.

EXAMPLE:

Statement:

Should all young people in the Kingdom of Saudi Arabia go on to higher education?

Proposed Arguments:

1. Yes; college provides an opportunity for them to wear college scarves.

(WEAK, this would be a silly reason for spending years in college.)

2. No; a large percentage of young people do not have enough ability or interest to derive any benefit from college training.

(STRONG, if this is true, as the directions require us to assume, it is a weighty argument against all young people going to college.)

3. No; excessive studying permanently warps an individual's personality.

(WEAK, this argument, although of great general importance when accepted as true, is not directly related to the question, because attendance at college does not necessarily require excessive studying.)

The answer to the example

Argument		
1	STRONG	WEAK O
Argument		
2	STRONG O	WEAK
Argument		
3	STRONG	WEAK O



## EXERCISE FIVE

Statement:

It is possible to develop a controllable death ray that will, under certain conditions, kill living organisms on which it is focused for as far as five miles or more .

Proposed Arguments:

- 65. No; some physicists have already tried to develop a controllable death ray and have not been able to do so.
- 66. No; if such a ray is ever developed, countermeasures to reduce or to offset its effects will also be developed.
- 67. Yes; experiments have shown that certain kinds of energy waves are capable of killing plants, insects and small animals at distances of up to half a mile.

Statement:

Should the teacher's role be confined only to giving facts to pupils?

Proposed Arguments:

- 68. No; because the teacher is an educator rather than a teacher.
- 69. Yes; facts are very essential and basic for pupils.
- 70. No; the teacher should help to prepare pupils to adapt to their society.

Statement:

Should businessmen subsidise farmers for soil conservation practices on their land?

Proposed Arguments:

- 71. No; farmers have had good status in the past, but today most of the population lives in cities.
- 72. No; soil conservation practices are in the farmers' own long term interest and are likely to more than repay farmers for their investment by increasing the value of their land.
- 73. No; businessmen have already invested in many projects.

**Statement:**

Should high standards of purity for the country's air and water be maintained, even though the result is higher prices to the consumer for electricity and manufactured goods?

**Proposed Arguments:**

- 74. Yes; lowering air and water purity standards will inevitably lead to loss of human life.
- 75. No; a slight lowering of air and water purity standards will have few ill effects, but further inflation of prices for electricity and manufactured products will prove disastrous.
- 76. Yes; those who demand lower purity standards are concerned mainly with their own short-term profits.

**Statement:**

Should it be necessary for the Ministry of Education to give further training to teachers at the elementary stage through to university teachers and beyond?

**Proposed Arguments:**

- 77. Yes; because this stage is very important and basic.
- 78. No; this stage does not need much effort and much preparation.
- 79. Yes; the qualified teacher is able to contribute to the development of pupils to graduate level.
- 80. Yes; the qualified teacher has the ability to deal with the educational needs of pupils at this stage .

Thank you for your co-operation in working through these exercises.

**Appendix (5) Answer Sheet MWGCTA**

**CRITICAL THINKING APPRAISAL**

**ANSWER SHEET**

**Student's Name:**  
**Date of Test:**  
**TIME:**



INSTRUCTION: To answer clearly try to use a sharp pencil. If you wish to change an answer, make sure that you rub your old answer completely.

EXERCISE 1: Inference

T	PT	ID	PF	F	T	PT	ID	PF	F	T	PT	ID	PF	F
1	O	O	O	O	5	O	O	O	O	9	O	O	O	O
2	O	O	O	O	6	O	O	O	O	10	O	O	O	O
3	O	O	O	O	7	O	O	O	O	11	O	O	O	O
4	O	O	O	O	8	O	O	O	O	12	O	O	O	O
5	O	O	O	O	9	O	O	O	O	13	O	O	O	O
6	O	O	O	O	10	O	O	O	O	14	O	O	O	O
7	O	O	O	O	11	O	O	O	O	15	O	O	O	O
8	O	O	O	O	12	O	O	O	O					

EXERCISE 2: Recognition of Assumption

Assumption Made	YES	NO	Assumption Made	YES	NO	Assumption Made	YES	NO	Assumption Made	YES	NO
17	O	O	21	O	O	25	O	O	29	O	O
18	O	O	22	O	O	26	O	O	30	O	O
19	O	O	23	O	O	27	O	O	31	O	O
20	O	O	24	O	O	28	O	O	32	O	O

EXERCISE 3: Deduction

Conclusion Follows	YES	NO	Conclusion Follows	YES	NO	Conclusion Follows	YES	NO
33	O	O	37	O	O	41	O	O
34	O	O	38	O	O	42	O	O
35	O	O	39	O	O	43	O	O
36	O	O	40	O	O	44	O	O

EXERCISE 4: Interpretation

Conclusion Follows	YES	NO	Conclusion Follows	YES	NO	Conclusion Follows	YES	NO
49	O	O	53	O	O	57	O	O
50	O	O	54	O	O	58	O	O
51	O	O	55	O	O	59	O	O
52	O	O	56	O	O	60	O	O

EXERCISE 5: Evaluation of Arguments

Argument	Strong	Weak	Argument	Strong	Weak	Argument	Strong	Weak
65	O	O	69	O	O	73	O	O
66	O	O	70	O	O	74	O	O
67	O	O	71	O	O	75	O	O
68	O	O	72	O	O	76	O	O

Exercise Score Summary	
1: Inference	
2: Recognition of Assumptions	
3: Deduction	
4: Interpretation	
5: Evaluation of Arguments	
Total Raw Score	

Conclusion Follows	YES	NO	Conclusion Follows	YES	NO	Conclusion Follows	YES	NO
61	O	O	62	O	O	63	O	O
62	O	O	63	O	O	64	O	O
63	O	O	64	O	O			
64	O	O						

Argument	Strong	Weak	Argument	Strong	Weak	Argument	Strong	Weak
77	O	O	78	O	O	79	O	O
78	O	O	79	O	O	80	O	O
79	O	O	80	O	O			
80	O	O						

**Appendix (6) Achievement Test**

**ACHIEVEMENT TEST IN HISTORY  
FOR THE FIRST YEAR IN SECONDARY SCHOOLS**

**Prepared by**

**M. AL-SHAHRANI**

**1993**

## **ACHIEVEMENT TEST IN HISTORY**

**FOR THE FIRST YEAR IN SECONDARY SCHOOLS**

**IDENTIFIER:(as in the questionnaire)**

**NAME:**

**SCHOOL:**

**CLASS:**

**DATE:**

**TEST TIME:**

### **DIRECTIONS**

**This test will measure your achievement in History .**

**Answer all questions.**

- **Try to be sure about your answer. DO NOT guess.**
- **Do not start the test before you are told.**
- **You should write your answer for the FIRST, SECOND, THIRD, and FOURTH sections on the questions' sheet.**
- **You should write your answer for the remaining questions on the answer sheet which accompanies this test**



## **The objectives of the achievement test**

The following points are the objectives of the achievement test in History for the first year in Secondary schools:

### **SECTION ONE:**

- 1- Students should be able to understand how the Prophet Mohammed behaved in his holy war.
- 2- Students should recognize life in the unenlightened age.
- 3- Students should be aware of the wisdom of the Prophet Mohammed.
- 4- Students should know some names of the Prophet Mohammed's followers.
- 5- Students should be able to distinguish why Muslims missed the first chance for victory in the battle of Ohud.
- 6- Students should know the names of some places where battles occurred .
- 7- Students should know some events and dates.
- 8- Students should be able to interpret the most important aims of studying the Prophecy and biography of the Prophet Mohammed.
- 9- Students should recognize the reasons why Muslims are encouraged to tolerate unbelievers.

### **SECTION TWO:**

- Students should be able to distinguish between correct and incorrect answers.

### **SECTION THREE:**

- Students should be able to match up several names, places, and facts.

### **SECTION FOUR:**

- Students should be able to put a suitable word in its right place.

### **SECTION FIVE:**

- Students should be able to evaluate and give their opinion about some features of the Prophet Mohammed's life .

### **SECTION SIX:**

- Students should be able to give an explanation for events that occurred in the time of the Prophet Mohammed and opinions about some events.

### **SECTION SEVEN:**

- Students should be able to describe, infer, and make comparisons from information given.

**SECTION EIGHT:**

- Students should be able to infer and make judgements from small passages which describe some features of the Prophet Mohammed's life.

**SECTION NINE:**

- Students should be able to express themselves and discuss one of the important aspects of the personality of the Prophet Mohammed .

## **ANSWER ALL THE FOLLOWING QUESTIONS:**

### **FIRST:**

Put a circle round the correct answer in the following items:

1. The Prophet Mohammed adhered in his war to:
  - a. Killing the captives only.
  - b. Killing everyone who participated in the war.
  - c. Forgiving everyone.
  - d. Leaving women and children unharmed.
  - e. Forgiving all the captives.
  
2. The Prophet Mohammed disliked the life of ignorance including :
  - a. Playing and amusement.
  - b. Immorality.
  - c. Worshipping idols.
  - d. Burying daughters.
  - e. All of the above.
  
3. The wisdom of the Prophet Mohammed became clear when he gave the sword to:
  - a. Khalid bin Al-walid.
  - b. Ali bin Abi Talib.
  - c. Osamah bin Zaid.
  - d. Abudojanah.
  - e. All of the above.
  
4. The Prophet Mohammed said that " anybody entering his house is secure".  
The Prophet Mohammed meant :
  - a. Ekrima bin Abi gahl.
  - b. Sohail bin Amer.
  - c. Abu Sofain.
  - d. Safwan bin Omai.
  - e. All of the above.
  
5. Muslims missed the first chance for victory in the Ohud battle for the following reason:
  - a. They were outnumbered by unbelievers.
  - b. Their opponents had more powerful weapons.
  - c. The Muslim people were weak.
  - d. Disobedience regarding the Prophet Mohammed's commands.
  - e. Weather conditions.



6. Jaafar bin Al-Tair died as a martyr in the battle of:
- Tabuk.
  - Hunain.
  - Badar.
  - Moatah.
  - Khaibar.
7. The message of the Prophet Mohammed began in:
- 630.
  - 610.
  - The elephant year.
  - 9th H.
  - The year of Al-Ramadh.
8. The leader of the expedition whom the Prophet Mohammed appointed before his death was:
- Shurhabeel bin Hasan.
  - Abdulah bin Roah.
  - Osamah bin Zaid.
  - Zaid bin Harithah.
  - AbdulRahman bin Auf.
9. The Prophet Mohammed and his close friend were hidden at:
- Thour Cave.
  - Al-nour Mountain.
  - Al-Rahmah Mountain.
  - Yathrib.
  - Al-Aqabah.
10. The Prophet Mohammed sent a person to distribute propaganda among his enemies in the battle of Al- Ahzab. This person was :
- Hasan bin Thabit.
  - Mosaab bin Omair.
  - Asaad bin Moad.
  - Naeem bin Masoud.
  - Ali bin Abi Talin.
11. Who swore to punish the Prophet Mohammed when he received his letter?:
- The Emperor of Rome.
  - Al-Nagashi.
  - Al-Mogogas.
  - The King of Al-ghasasinah.
  - Kisra, the King of Persia.

12. The most important aim of studying the Prophecy and biography of Mohammed is:

- a. To know how the Prophet Mohammed lived.
- b. To understand the unenlightened society at that time.
- c. As a part of History.
- d. As a story.
- e. To learn many lessons and values from it.

13. The Prophet Mohammed gathered his people secretly for about:

- a. One year.
- b. Five years.
- c. Three years.
- d. Ten years.
- e. Thirteen years.

14. The battle which happened between the Muslims and the Hawazin and Thageef tribes was called:

- a. Uhd.
- b. Hamra Al-asad.
- c. Hunain.
- d. Badr.
- e. Thageef and Hawazin.

15. There are many reasons why Muslim people are encouraged to tolerate unbelievers :

- a. They are Muslims.
- b. Their feeling of responsibility.
- c. They have strong faith of Allah.
- d. Their feeling that they will have victory in the end.
- e. All of the above.

( 15 marks)

## SECOND:

Put a tick (✓) in front of the CORRECT item, and a cross (X) in front of the WRONG item and correct it in the following list :

- a. The message of the Prophet Mohammed was directed to the Arabs in particular, and to all people in general.
- b. The Prophet Mohammed participated in the clubs of his people in his youth.
- c. The Prophet Mohammed spent much of his time in Hira Cave contemplating the whole world of Allah.
- d. The role of Islam was very important in changing the life of the Arabs and unifying them.
- e. The Muslim people accepted the peace treaty of Al-Hudaibiyya because they felt they were weak and they had no weapons.
- f. The Prophet Mohammed was an ascetic .

(11 marks)

### THIRD:

Match the suitable word in column A with the correct item in column B by putting the number in front of the item in column B which relates to column A in the following list:

A	B
1 -The revelation	Alfigar War
2 -In the ignorance	Hunain
3 -Al-Madinah	The supporter
4 -Hira Cave	Idols
5 -Makkah	Jibreel
	The Prophet M. liked to sit on it
	AlNour Mountain
	The black stone
	Quraish
	Al-Najashi
	Al-Ous & Al-Khazrag
	false testimony
	to free people from idolatry
	"Read in the name of thy lord and cherisher, who created"
	Thageef

( 10 marks)

### FOURTH:

Fill in the blank with a suitable word:

- a. The Prophet Mohammed has said that: I have come to complete - - - - -
- b. Khadigah replied to the Prophet Mohammed by saying that " Allah does not - - - - -  
- - - - -, - - - - -, - - - - -, - - - - -  
, - - - - -
- c. The Prophet Mohammed sent - - - - - to Yemen to call them to Islam.
- d. The Prophet Mohammed chose four persons to lead his forces in the conquest of Mecca.  
These were - - - - -, - - - - -, - - - - -,  
- - - - -.
- e. "Invite all to the way of thy Lord with - - - - - and - - - - -and - - - - -with  
them in ways that are best" .

( 13 marks)



## **FIFTH:**

(A) "The Prophet Mohammed was known as the honest man."

- \* Why did people describe him like this?
- \* What examples are there of this?

(5 marks)

(B) The Prophet Mohammed said that :

" Where there is softness it beautifies that thing and from that which it is taken away it snatches its glamour."

- \* What does softness mean?
- \* What are the advantages of softness?
- \* Do you think this is correct?
- \* This sentence indicates one of the best features of the Prophet Mohammed. What is it?

( 7 marks)

## **SIXTH:**

- \* What do you know about the "Al-Foodol Alliance" ?
- \* What is your opinion of its advantages?
- \* Do you think is it correct? if not, why not?
- \* What did Prophet Mohammed say about it?

( 10 marks)

## **SEVENTH:**

When the immigrant Muslims arrived in Ethiopia (Alhabasha) its king asked them about the essence of their religion, then Jafar bin Abi Talib said :

"We were in the age of ignorance. We worshipped idols, ate bad meat, did bad deeds, did not visit our relatives, insulted our neighbour; the strong one has eaten the weak one. We lived in this situation until Allah sent his messenger to us and we knew his truthfulness, lineage and honesty, then. He called us to worship one God (Allah) and leave idolatry. He commanded us to be truthful in our talking, act honestly, visit our relatives, be kind to our neighbour, give up bad deeds and He also commanded us to worship Allah, perform prayer, charity and fasting. So we have trust in him and follow him directly."

READ the above passage and do the three tasks below :

- \* Describe the age of ignorance.
- \* Compare this description with the view of Islam .
- \* Give your opinion about the view in the above passage .

( 12 marks)

## **EIGHTH:**

From the passage below try to infer some features of the life of the Prophet Mohammed:  
"The Prophet Mohammed worked privately on his own. He milked his goats, repaired his shoes, stitched his garment, fed his camel, built his tent and carried what he bought from the market by himself."

Would you like to be like him? if not, why not?

( 6 marks)

## **NINTH:**

Write an essay about the asceticism of the Prophet Mohammed, discussing the following points:

- a. The meaning of asceticism.
- b. Why the Prophet Mohammed tended to be an ascetic.
- c. Give examples and reasons to support what you say.

( 11 marks)

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## Appendix (7) The Teaching Programme by Using Inquiry Method

Lesson: 1		Date	Resources:
Time			Prescribed textbooks, map of Mecca , transparencies, reference books.
The Prophet Mohammed before his Prophecy.			
Objectives: 1b, 2b, 2c, 5b, 3c, 8b, 7b, 6b, 10b, 10c, 11c.			
		TEACHER'S ACTIVITIES	STUDENTS' ACTIVITIES
INTRODUCTION	<p>The teacher here will ask his students about the previous lesson to be sure that they remember. He will motivate them to formulate or raise the problem or question about this lesson as follows: Was Prophet M. familiar with his people's life?</p>		<p>Students here will reply to the following questions: Who is the Prophet? When was he born? Where was he born? Can you remember anything about his childhood? They present their assignment to their teacher; after that and from their reading they will try to raise the following question: Was Prophet Mohammed familiar with his people's life?</p>
DEVELOPMENT	<p>The teacher will guide them to formulate temporary answers to this question ( Was Prophet M familiar with his people's life?). After that he will divide them into groups to look for information and answers. He will encourage them to find out evidence from the Holy Quran and Hadith.</p>		<p>They will try to think about temporary answers or solutions such as: Allah was preparing him for a great purpose, or there were many differences between people in their morals and moods. They will work into groups to find out several kinds of information e.g. what was the Prophet Mohammed's life like in the markets and clubs? What were the bad things which he disliked ? What were the good things which he liked ? They will read some verses from the holy Quran as evidence. They will try to read a map to determine the location of Mecca.</p>
CONCLUSION	<p>The teacher will direct them to conclude the main facts from the lesson or make a generalization. He will assign them written questions or reading references or ask them to collect pictures of Mecca in the past and now if that is possible.</p>		<p>They will formulate a generalization such as: Allah was preparing him for the great purpose, that is, to carry the message of Islam, and for that he looked after him carefully.</p>

Lesson: 2	Date	Resources:
Time		Prescribed text book, The Holy Quran, The Hadith book, a map, some reference books, some transparencies.
The Prophet Mohammed before his Prophecy.		
Objectives: 1b, 2a, 9a, 6b, 4a, 8a, 10a, 3a, 7a, 13a, 10c, 11a.		
	TEACHER'S ACTIVITIES	STUDENTS' ACTIVITIES
INTRODUCTION	The teacher will start this lesson by asking his students what they know about the Prophet M. He will provide all the material such as map, transparencies.	Students will answer some questions about their last lesson as follows: What do you know about the youth of Prophet M? Can you mention the good things that he liked ? What did we deduce as fact or generalization? Then they will participate effectively in discussion and try to raise questions to begin their new lesson, e.g. Was the Prophet M. simply familiar with his people ?
DEVELOPMENT	By discussion between the teacher and his students, the problem or the question will be raised about the new lesson such as: Was Prophet M. simply familiar with his people?. The teacher will help them to formulate hypotheses. He will divide them into groups to collect data and make inferences from the given information about the Prophet M. and his people.	They will formulate hypotheses or temporary answers to the previous problem or question with their teacher's assistance. e.g. He did not participate in their bad life, or there is a difference between what he liked and what they practised? Students will work in groups to collect data from the references and make a report about what they did, and they will have the chance to pose questions if they are confused.
CONCLUSION	He will ask them to make a generalization or sum up what they have learned. He will give an assignment to them involving written questions or reading, or provide something for the next lesson.	They will try to generalize about the important facts in the lesson and sum up what they have learnt. They will begin homework and prepare themselves for the next lesson.



Lesson: 3 Time		Date	Resources:
His keeping far away from Idols. Objectives: 1b, 2b, 9c, 2c, 4b, 5b, 7b, 5c, 10b, 4a, 11a, 8a, 10c, 11b.			Prescribed textbook, some reference books, transparencies, map.
		TEACHER'S ACTIVITIES	STUDENTS' ACTIVITIES
INTRODUCTION	<p>The teacher will ask his students several questions to review the previous lesson, to see if they have found any difficulties during their reading or assignments. At the end of this stage they will raise the question for the present lesson e.g. What was Prophet Mohammed's life like with his people?</p>		
DEVELOPMENT	<p>Here he requests his students to suggest temporary answers to the question: What was the Prophet Mohammed's life like with his people? He will sometimes comment and reward his students by saying "well done" , "good." He will divide them into groups to collect information about the Prophet Mohammed's life.</p>		
CONCLUSION	<p>He will help them to sum up the main facts or generalizations. He will ask his students to write an essay of two pages , and to read about the next lesson.</p>		
	<p>They will suggest some hypotheses to answer this question (What was Prophet Mohammed's life like with his people?), e.g. Prophet M. did not worship the idols because he found it useless, or he recognized that these idols were useless. They will pose questions about any aspect of Prophet Mohammed's life if they feel something is unclear, and they will work in groups to collect their information from many sources such as referencebooks, textbooks, maps, transparencies.</p>		
	<p>They will formulate generalizations. They will write an essay to show how much they have learnt from the lesson.</p>		

Lesson: 4 Time		Date	Resources:
The revelation			Textbook, reference books, transparencies, audio cassette, pictures, the Quran.
Objectives: 2c, 4c, 10c, 3b, 4c, 8c, 12a, 9b, 8b, 11b.			
		TEACHER'S ACTIVITIES	STUDENTS' ACTIVITIES
INTRODUCTION	As usual the teacher will ask his students some questions about the preceding lesson. He will stimulate students in the lesson by using an audio cassette which includes someone reciting some verses of the Quran.		Students will answer this question: What do you know about Prophet Mohammed's life? They will raise the following question, Why did Prophet M. come back to his house scared, upset and frightened?
DEVELOPMENT	He will try to help them to present hypotheses for the following question: Why did Prophet M. come back to his house scared, upset and frightened? He will encourage them to collect data about the revelation in groups.		With their teacher's assistance they will formulate hypotheses about why the Prophet M. came back to his house scared, such as: He might have seen something specific or had a good dream, or it could be his long contemplation that led him to the revelation. They will collect information about the revelation and discuss its meaning: How did the Prophet M. receive it? How many kinds of revelation were there? What about his reaction?
CONCLUSION	He will help them to generalize about what they have learnt. He will present some questions to them as an assignment, and he will request them to read a topic from one reference.		They will make generalizations, for example, Allah revealed himself and chose M. to convey Islam to all human beings.

<p><b>Lesson: 5</b> <b>Time</b> The message of Prophet M. and his people. Objectives: 1c, 2c, 6b, 4b, 9b, 10b, 11b, 8b, 8c, 10c, 4c.</p>	<p><b>Date</b></p>	<p><b>Resources:</b> The textbook, transparencies, a map of Mecca, some reference books.</p>
	<p><b>TEACHER'S ACTIVITIES</b></p>	<p><b>STUDENTS' ACTIVITIES</b></p>
<p><b>INTRODUCTION</b></p>	<p>The teacher will revise the ongoing work with his students. He will begin the inquiry about the message of the Prophet M. to help them to pose the problem or the question for the present lesson as: Was the message of the Prophet M. acceptable to his society?.</p>	<p>Students will reply to the teacher's questions, e.g. Would you remind me about Prophet M when he was back at home? Can you remember verses to describe this? They will try to raise questions or problems such as: Was the message of the Prophet M. acceptable to his society?</p>
<p><b>DEVELOPMENT</b></p>	<p>He will help them to formulate hypotheses about the message of Prophet M. by asking them to make temporary answers. He will guide them to divide themselves into groups. He will guide them to find examples about how people dealt with Prophet Mohammed's message from the reference books and compare the situation of Islam with the position of the Quraish tribe.</p>	<p>They will try to formulate some hypotheses about the message of the Prophet M, e. g. It might be that the Quraish tribe did not accept this, or there were many difficulties They will start to collect information from their references and visit the library in their schools. Then they will report everything and present examples to make a comparison between Islam and Quraish practices.</p>
<p><b>CONCLUSION</b></p>	<p>By explaining what they have got from the discussion he will encourage them to extrapolate the main facts about the message of the Prophet M. He will give them a written assignment and reading for the next lesson.</p>	<p>They will extrapolate that the Quraish tribe did not accept Prophet Mohammed's message and they fought with him.</p>



Lesson: 6 Time		Date	Resources:
The calling to Islam. Objectives: 1b, 2c, 8b, 5b, 8c, 6b, 4b, 10c, 13, 9b, 11b.			The textbook, reference books, the holy Quran, transparencies, map.
		TEACHER'S ACTIVITIES	STUDENTS' ACTIVITIES
INTRODUCTION	<p>The teacher will ask his students some questions for example, Do you think Quraish accepted the message of Prophet M? Why?/ Why not? What did they do? Then he will help them to raise the question.</p>		<p>Students will answer such questions as: Did the Quraish tribe accept the message of the Prophet M. Then they will try to raise this question may be after their silent reading, : How did Prophet M. begin his message to call people to Islam?</p>
DEVELOPMENT	<p>He will encourage them to formulate hypotheses about the calling of Islam. He will divide them into groups. He will show them transparencies about the dialogue between Prophet M. and his people.</p>		<p>They will try to make some hypotheses about the calling to Islam e.g. Prophet M. called people to Islam forcefully. He outlined Islam to his relatives; many of his relatives believed him without any hesitation.</p>
CONCLUSION	<p>He will ask them to conclude the main points from this lesson. He will give them a written assignment. and ask them to collect some information about the dissemination of Islam in the world.</p>		<p>They will conclude the important points from this lesson, such as: The message of the Prophet M. was wide spread and the number of Muslims proliferated.</p>

Lesson: 7 Time		Date	Resources:
His persistence in conveying his message. Objectives: 1b, 2b, 2c, 5b, 9b, 4b, 6b, 10c, 3c, 8b, 11b.			The textbook, reference books, transparencies, map, the Quran.
	TEACHER'S ACTIVITIES	STUDENTS' ACTIVITIES	
INTRODUCTION	<p>The teacher will try to pose many questions about the previous lesson and he and his students will raise questions for the present lesson as follows:</p> <p>Do you think that was an easy way to disseminate Islam?</p> <p>Which procedure did the Prophet M. follow after that?</p> <p>How did he prepare himself and his followers to convey the message?</p>	<p>Students will try to participate effectively and to answer all questions, for example:</p> <p>Which ways did Prophet M. use to call people to Islam? Can you remind me about how he called them to Islam?</p> <p>Then they will raise these questions:</p> <p>Do you think that was an easy way to disseminate Islam? Why/ Why not?</p> <p>Which procedures for disseminating Islam did Prophet M. follow after that?</p> <p>How did he prepare himself and his followers to convey the message?</p>	
DEVELOPMENT	<p>He will ask them to form hypotheses about the persistence of the Prophet M. in conveying his message.</p> <p>He will divide them into groups.</p>	<p>They will present some hypotheses about the persistence of the Prophet M. in conveying his message, for example: That way was not easy, or the task was not too easy, but this was the time to enlarge the circle of Islam.</p> <p>Students in groups will begin to collect all information from the textbook and reference books about the persistence of the Prophet M. in conveying his message.</p> <p>They might be able to ask questions if they are confused.</p>	
CONCLUSION	<p>He will ask them to deduce facts or generalizations or principles, such as: The Prophet M. and the Muslims provided the greatest examples of patience and benevolence in their behaviour in the war. He will ask them to answer some questions at home and read about this subject in reference books.</p>	<p>They will be able to make generalizations such as the Prophet M. and the Muslims provided the greatest examples in patience and benevolence in their behaviour in the war.</p>	



Lesson: 8 Time The leadership of Prophet Mohammed. Objectives: 1c, 2c, 4b, 6b, 10b, 5c, 9b, 8c, 7a, 10c, 7b, 11b, 13a.	Resources: The textbook, reference books, map, transparencies.
Date	STUDENTS' ACTIVITIES
<p data-bbox="380 2457 457 2724"><b>INTRODUCTION</b></p> <p data-bbox="380 1427 590 2398">The teacher will revise the previous lesson with his students by asking them some questions, and he will stimulate them to formulate a question or a problem for this lesson such as: What was the Prophet Mohammed's leadership like? He might ask them to read silently before starting the discussion.</p> <p data-bbox="989 2427 1024 2724"><b>DEVELOPMENT</b></p> <p data-bbox="947 1427 1199 2398">He will help them to formulate hypotheses about the Prophet Mohammed's leadership. He will divide them into groups to collect data about the leadership of the Prophet M. He will show quotations from the textbook and he will ask some questions about how the Prophet M. behaved with his enemies.</p> <p data-bbox="1556 2466 1591 2724"><b>CONCLUSION</b></p> <p data-bbox="1514 1478 1598 2398">He will ask them to write an essay about this lesson . and read some stories about Prophet M and his life.</p>	<p data-bbox="380 121 590 1368">Students will reply to these questions : What was the aim of the holy war? What were the options that Muslims offered to the people when they called them to Islam? After that they will formulate a question or a problem e.g. What was the Prophet Mohammed's leadership like? They may read the lesson material silently.</p> <p data-bbox="1031 121 1377 1368">They will try to formulate hypotheses such as: The Prophet M. was an intelligent and wise man and this might have affected all his actions, or the Prophet M. behaved towards his people kindly and courteously which helped people to understand Islam very well. They will work in groups to find the information about the characteristics of the leadership of Prophet M. and compare that with recent situations. They will read the quotation about how Prophet M. behaved towards his enemies, and answer the questions.</p> <p data-bbox="1556 172 1640 1368">They will conclude that Prophet M. was a great leader and he had good military manners and it might be useful to benefit from this and apply it in our own lives.</p>



Lesson: 9 Time		Date	Resources: The textbook, reference books, transparencies, map.
The wisdom of the Prophet M. Objectives: 1c, 2b, 6b, 5b, 4b, 9b, 10b, 10c, 12a, 7a, 11c, 13c.		STUDENTS' ACTIVITIES	
INTRODUCTION	TEACHER'S ACTIVITIES		Students will answer questions, for example: Can you analyse the leadership of Prophet M.? Then they will try to raise the problem for the present lesson as follows: What can you find out about the wisdom of Prophet M. and his personality?
DEVELOPMENT	<p>He will help his students to formulate hypotheses with each other about the wisdom of the Prophet M. about the wisdom of the Prophet M.</p> <p>He will divide them into groups to collect data about the wisdom of the Prophet M. and test hypotheses.</p> <p>He will show them transparencies about the wise behaviour of the Prophet M.</p>		They will formulate hypotheses with each other about the wisdom of the Prophet M. e.g. Every deed which the Prophet M. did depended on his wisdom and insight. They will look for information to address hypotheses and report what they find, and they will read the story of ABUDOGANAH and discuss it with each other to evaluate the wisdom of the Prophet M.
CONCLUSION	<p>He will request them to sum up what they have learnt .</p> <p>He will comment on and correct their work .</p> <p>He will give them a written assignment and ask them to read for the next lesson.</p>		They will sum up the main points and principles in this lesson, e.g. Prophet M. had virtues and good manners in his dealings with companions and we should apply all these manners in our lives and in our dealings with each other.

Lesson: 10		Date	Time	Resources:
The private life of Prophet M.(asceticism)				The textbook, reference books, transparencies.
Objectives: 1b, 2a, 3a, 6b, 5b, 9a, 10c, 4a, 11b, 13b.				
	TEACHER'S ACTIVITIES		STUDENTS' ACTIVITIES	
INTRODUCTION	The teacher will ask some questions about the preceding lesson, and encourage his students to ask questions if they did not understand something, then define the problem for this lesson as follows: Was the Prophet M. an ascetic?		Students will answer questions orally, e.g. Can you explain some features of the wisdom of Prophet M? Then they will pose a question about the private life of the Prophet M. For example: Was the Prophet M. an ascetic?	
DEVELOPMENT	He will ask them to suggest tentative answers for this question Was the Prophet M. an ascetic? He will put them in groups to extract information from textbooks and reference books in the library. He will show them transparencies about the story of Omer.		They will suggest two or three hypotheses, e.g. The beginning of his life was different from that of his peers or he did not have money, therefore he was an ascetic. They will work in groups to collect information and test their hypotheses and report the results to the class.	
CONCLUSION	He will ask them to sum up the main facts from this lesson. He will ask them to write an essay about asceticism and its advantages, and will ask them to read a story about the private life of the Prophet M.		They will sum up the important facts from the lesson i.e. that the Prophet M. exemplified asceticism and contentment. Then they will try to compare that with their own attempts to follow their Prophet's life.	

Lesson: 11		Date	Time	Resources:
The humility of the Prophet M.				The textbook, reference books, the holy Quran, transparencies.
Objectives: 1b, 2c, 6b, 5b, 10b, 4b, 9b, 8b, 12a, 3b, 11b.				
	TEACHER'S ACTIVITIES		STUDENTS' ACTIVITIES	
INTRODUCTION	The teacher will ask questions in order to be sure about his students' understanding of the previous lesson, and raise their motivation to pose questions about and to indicate problematic areas in finding out about the humility of the Prophet M.		Students will answer these questions orally, e.g. What did Prophet M. do in his youth? What can you deduce from the relationship between the Prophet M. and his wife ? Then they will pose a problem or a basic question: To what extent did the Prophet M. have humility?	
DEVELOPMENT	The teacher will try to aid them to formulate hypotheses or temporary solutions or answers about the humility of the Prophet M. He will divide them into groups to collect data from many sources. He will show them transparencies about what Eisha said about the humility of the Prophet M.		They will formulate hypotheses, such as: The Prophet M. was a person who was known as truthful and honest and undoubtedly humble. They will collect data about the humility of the Prophet M. and discuss it with each other and report to the class.	
CONCLUSION	He will request them to conclude the important points about the humility of the Prophet M. He will give some questions to them for a written assignment and ask them to read more about the humility of the Prophet M.		They will make generalizations from their data, e.g. that the Prophet M liked humility and disliked pride and conceit. They have to follow in their own lives everything that they have found in the life of their Prophet.	



Lesson: 12 Prophet M. and his Justice, Mercy and Forgiveness. Objectives: 1b, 2c, 5b, 10b, 9b, 4b, 8c, 9c, 12b, 13b.		Date	Time	Resources: The textbook, the holy Quran, transparencies.
	TEACHER'S ACTIVITIES	STUDENTS' ACTIVITIES		
INTRODUCTION	<p>The teacher will ask his students to give a summary of the previous lesson and he will motivate them to formulate a problem or a question such as: What was the Justice, Mercy and Forgiveness of the Prophet M?</p>	<p>Students will summarize the main points from the last lesson as follows: the Prophet M. accepted any invitation to eat and stay among needy people. Students will formulate a question or a problem about the Justice, Mercy and Forgiveness of their Prophet e.g. What was the Justice, Mercy and Forgiveness of the Prophet M?</p>		
DEVELOPMENT	<p>He will ask them to make suggestions to solve this problem or answer the question. He will guide them to work in groups to find out more information about the question. He will ask them to give examples as evidence. He will show transparencies about the story of Prophet M.</p>	<p>They will devise more than two suggestions for the Justice, Mercy and Forgiveness of the Prophet M. and work in groups to find information about the justice, mercy and forgiveness of the Prophet M. and discuss it with each other and report to the class. They will read some verses about the justice of the Prophet M. as evidence.</p>		
CONCLUSION	<p>He will ask them to deduce the important facts about the Justice, Mercy and Forgiveness of the Prophet M. He will give them a book to read in preparation for the next lesson.</p>	<p>They will infer that the Prophet M. was justice and merciful.</p>		

Lesson: 13 Prophet M's. morality and patience. Objectives: 1b, 2b, 5b, 6b, 4b, 10b, 8a, 13a, 9b, 11b.		Date	Time	Resources: The textbook, reference books, the holy Quran.
	TEACHER'S ACTIVITIES			STUDENTS' ACTIVITIES
INTRODUCTION	The Teacher will ask students some questions about the previous lesson, and he will encourage them to pose a question or a problem as follows: What was the morality and patience of the Prophet M.?			Students will answer these questions: What does justice mean? Can you remember examples about the justice, mercy and forgiveness of the Prophet M.? They will pose a question or a problem about Prophet Mohammed's morality and patience.
DEVELOPMENT	He will ask them to suggest many answers for that question. He will divide them in groups to collect information. He will show students some transparencies about many Hadith related by Prophet M.			They will suggest many answers to the question of the Prophet M's. morality, e.g. His actions indicated that he was very patient. They will work in groups and collect data and discuss it with each other under the teacher's guidance. They will pose questions after they have seen the transparencies about many Hadiths related by the Prophet M. e.g. How do they manage to act in this way themselves?
CONCLUSION	He will ask them to describe the personality of Prophet M. especially with regard to his morality and patience.			They will give a description of the Justice, Mercy and Forgiveness of the Prophet M. including the main points in the lesson, e.g. the personality of Prophet M. represented the greatest personality in the world.

Lesson: 14		Date		Time		Resources:	
The eloquence and rhetoric of Prophet M.						The textbook, reference books, transparencies.	
Objectives: 1b, 2b, 6b, 5b, 10b, 9b, 4b, 11c, 13b.		TEACHER'S ACTIVITIES		STUDENTS' ACTIVITIES			
INTRODUCTION		The teacher will enable his students to discuss the last lesson , then he will stimulate them to formulate questions or problems for this lesson such as: Did the Prophet Mohammed speak good words and great proverbs?				Students will participate in the discussion and prepare answers between them about the morality and patience of Prophet M. They will try to pose the main question in their new lesson: Did the Prophet M. speak good words and great proverbs?	
DEVELOPMENT		He will aid them to pose hypotheses about the eloquence and rhetoric of the Prophet M. and work in groups to find out more information to answer their questions. He will show them some transparencies which indicate examples, proverbs and Hadiths related by their Prophet.				They will formulate hypotheses such as: The Prophet M. could neither read nor write, although he was a good speaker. They will work in groups to collect data and get more information about the eloquence and rhetoric of the Prophet M.	
CONCLUSION		He will direct them to conclude the main facts from the lesson. He will request them to write a short story about how can they apply these things - Hadith, proverbs and good words - in their own lives.				They will conclude that Prophet M. spoke only good words and proverbs, concisely and lucidly.	



Lesson: 15		Date	Time	Resources:
The advent of Islam.				The textbook, reference books, maps.
Objectives: 1b, 2b, 6c, 4c, 5b, 8b, 9b, 10b, 8c, 10c, 11b, 12a, 13b.				
	TEACHER'S ACTIVITIES		STUDENTS' ACTIVITIES	
INTRODUCTION	The teacher will begin by explaining the importance of the message of the Prophet M. and he will ask his students some questions about the last lesson. He will try to encourage his students to define a problem or a question such as: Does Islam have any effect upon people?		Students will answer their teacher's questions such as: From your previous study of the Prophecy of the Prophet M. can you analyse his personality and note his morality, eloquence and rhetoric? After that they will define the main problem or question about the advent of Islam by posing this question: Does Islam have any effect upon people?	
DEVELOPMENT	He will ask them to suggest several answers to their questions, and work in groups to look for information for the new lesson. He will show them maps to locate the countries at that time.		They will try to formulate temporary answers or suggestions, e.g. Islam exists for all human beings, or we knew that the Prophet M. and his followers liked each other and were united. They will visit the library in groups to collect their information about the advent of Islam and if they have any difficulty they will ask their teacher for help.	
CONCLUSION	He will motivate them to infer the important facts here. He will request them to answer some questions and apply information from maps.		They will infer the important fact that the message of the Prophet M. is a benevolent one for humankind.	

Lesson: 16 The Islamic conquest. Objects: 2b, 6c, 4c, 5b, 8b, 9b, 10b, 11b, 12a, 13b.		Date	Time	Resources: The textbook, reference books, the holy Quran, maps.
	TEACHER'S ACTIVITIES			STUDENTS' ACTIVITIES
INTRODUCTION	The teacher will start his lesson by asking his students some questions about the preceding lesson, and try to encourage them to formulate their problem or question about how the Prophet M. fulfilled his duty to spread Islam.			Students will answer the teacher's questions, e.g. What do you know about the situation in the Arabic Peninsula before the advent of Islam? Can you give examples of that? What were the empires which existed at that time? They will try to formulate their question or problem about how the Prophet M. fulfilled his duty to spread Islam .
DEVELOPMENT	He will ask them to formulate hypotheses by themselves about the Islamic conquest and discuss it with each other. He will ask them to divide themselves into groups to look for more information about the Islamic conquest.			They will try to formulate hypotheses e.g. whether, if the people knew the advantages of Islam they might accept it, or whether Islam detailed everything that is good. They will work in groups to find out more details and information about the Islamic conquest.
CONCLUSION	He will ask them to generalize from this information. He will ask them to write an essay about the effectiveness of Islam.			They will deduce that the Prophet M. was sent to all humankind and that he had to convey his message to them.

**Dear Teacher:**

These sheets will give you guidelines for observing what has happened or is happening in the class. All these sheets should be filled in during or after each lesson. They cover:

1. The quantity of the students' performance.
2. The quality of the students' performance.
3. Students' motivation.
4. Students' enjoyment of the lesson.

Please put a tick in front of each item if you see it occurring.



- \* Teacher's Name :(1-3)
- \* Class :
- \* Date :
- \* Time :
- \* Lesson:

Data	not all	at	very little	a little	a lot	very much
<b><u>Learning Styles:</u></b> Students make generalisations. Students ask questions. Students present work to the group. Students listen to others' presentations. Students make interpretations. Students formulate hypotheses. Students watch a video or listen to a tape and make notes. Discussion in small groups. Class discussion led by teacher. Students derive material from many sources to work on a given problem investigation or topic. Students organize an investigation on a given topic or problem. Students infer from given information. Students draw conclusions. Students distinguish between strong and weak arguments. Students identify the problem and devise ways of investigating it.						
<b><u>THE USE OF RESOURCES:</u></b> Students use books. Students use videos. Students use television. Students use audio cassettes. Students use practical equipment. Students use pictures. Students use maps. Students use transparencies.						
<b><u>The extent of students' performance in their assignments:</u></b> * Writing essays. * Answering written questions. * Reading about the subjects. * Doing other activities.						

Teacher's observation during his teaching in the class with regard  
to the quality of students' performance  
(2)

- \* Teacher's Name :(1-3)
- \* Class :
- \* Date :
- \* Time :
- \* Lesson:

DATA	Poor	Acceptable	Good	Very Good	Excellent
<u>Learning Styles:</u> Students make generalisations. Students ask questions. Students present work to the group. Students listen to others' presentations. Students make interpretations. Students formulate hypotheses. Students watch a video or listen to a tape and make notes. Discussion in small groups. Class discussion led by teacher. Students derive material from many sources to work on a given problem investigation or topic. Students organize an investigation on a given topic or problem. Students infer from given information. Students draw conclusions. Students distinguish between strong and weak arguments. Students identify the problem and devise ways of investigating it. <u>THE USE OF RESOURCES:</u> Students use books. Students use videos. Students use television. Students use audio cassettes. Students use practical equipment. Students use pictures. Students use maps. Students use transparencies. <u>The extent of students' performance in their assignments:</u> * Writing essays. * Answering written questions. * Reading about the subjects. * Doing other activities.					

Teacher's observation during his teaching in the class with regard to students' motivation.  
(3)

- \* Teacher's Name :(1-3)
- \* Class :
- \* Date :
- \* Time :
- \* Lesson:

Data	not all	at	very little	a little	a lot	very much
<u><b>Learning Styles:</b></u> Students make generalisations. Students ask questions. Students present work to the group. Students listen to others' presentations. Students make interpretations. Students formulate hypotheses. Students watch a video or listen to a tape and make notes. Discussion in small groups. Class discussion led by teacher. Students derive material from many sources to work on a given problem investigation or topic. Students organize an investigation on a given topic or problem. Students infer from given information. Students draw conclusions. Students distinguish between strong and weak arguments. Students identify the problem and devise ways of investigating it.						
<u><b>THE USE OF RESOURCES:</b></u> Students use books. Students use videos. Students use television. Students use audio cassettes. Students use practical equipment. Students use pictures. Students use maps. Students use transparencies.						
<u><b>The extent of Students' performance of their assignments:</b></u> * Writing essays. * Answering written questions. * Reading about the subjects. * Doing other activities.						



Teacher's observation during his teaching in the class with regard to students' enjoyment  
of the lesson

(4)

- \* Teacher's Name :(1-3)
- \* Class :
- \* Date :
- \* Time :
- \* Lesson:

Data	not all	at	very little	a little	a lot	very much
<u><b>Learning Styles:</b></u> Students make generalisations. Students ask questions. Students present work to the group. Students listen to others' presentations. Students make interpretations. Students formulate hypotheses. Students watch a video or listen to a tape and make notes. Discussion in small groups. Class discussion led by teacher. Students derive material from many sources to work on a given problem investigation or topic. Students organize an investigation on a given topic or problem. Students infer from given information. Students draw conclusions. Students distinguish between strong and weak arguments. Students identify the problem and devise ways of investigating it.						
<u><b>THE USE OF RESOURCES:</b></u> Students use books. Students use videos. Students use television. Students use audio cassettes. Students use practical equipment. Students use pictures. Students use maps. Students use transparencies.						
<u><b>The extent of students' performance in their assignments:</b></u> * Writing essays. * Answering written questions. * Reading about the subjects. * Doing other activities.						

Appendix (9) The size of choosing the Sample

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note - *N* is population size  
*S* is sample size.

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بسم الله الرحمن الرحيم

السلطة العربية السعودية

وزارة المعارف

إدارة التعليم بمنطقة أبها

الشئون الفنية

بشأن الموافقة على إجراء بحث

Appendix (11) The Letter of the Educational Directorate in Abha

لعمري لبعده طرارس لينا نوية

المكرم مدير مدرسة /

الموقر

السلام عليكم ورحمة الله وبركاته ، وبعد ،

بناء على خطاب سعادة مدير عام الإدارة العامة للبحوث التربوية والتقويم رقم ١٧/٤/١٤ في ١٢/١٤/١٤ بشأن السماح للباحث / صبا / صبا / صبا بتطبيق بحثه بعنوان "أثر طرارس لينا نوية" في تطبيق أدوات البحث في عينة من مدارس المنطقة .

ونظرا لاكمال الأوراق المطلوبة حسب التعليمات الواردة من الإدارة العامة للبحوث التربوية والتقويم ، عليه نأمل مساعدة الباحث على تطبيق أدوات بحثه في مدرستكم على عينة من :

حجمها [ ٢٠ : ]  
حجمها [ ]  
حجمها [ ]  
حجمها [ ]

( ) الطلاب  
( ) المدرسين  
( ) الإداريين  
( ) أخرى تذكر

ما لم يكن هناك ما يمنع من ذلك .

وتجدون برفقه صورة من أداة (أدوات البحث) التي سيطبقها الباحث . كما نأمل عند انتهاء عملية التطبيق تعبئة النموذج المرفق واعادته إلينا .

ولكم خالص التحية .

مدير التعليم بالمنطقة  
د / حمد بن محمد الشفرو

صورة لاداء البحوث في الادارة التعليمية

## Appendix (12) The Frequencies and Percentages of the Experimental and Control Groups at the Time of the Pre-test

**Table1 : Students' Preference Different Learning Styles: Frequencies and Percentages at the Time of the Pre-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	1 (3.2)	1 (3.2)	4 (12.9)	11 (35.5)	14 (45.2)	4
1 (C)	0	2 (3.2)	9 (14.5)	31 (50.0)	20 (32.3)	4
2 (E)	2 (6.5)	4 (12.9)	14 (45.2)	9 (29.0)	2 (6.5)	3
2 (C)	1 (1.6)	8 (13.1)	27 (44.3)	17 (27.9)	8 (13.1)	3
3 (E)	1 (3.2)	4 (12.9)	11 (35.5)	12 (38.7)	3 (9.7)	3
3 (C)	2 (3.2)	11 (17.7)	14 (22.6)	18 (29.0)	17 (27.4)	4
4 (E)	3 (9.7)	7 (22.6)	14 (45.2)	4 (12.9)	3 (9.7)	3
4 (C)	7 (11.9)	8 (13.6)	22 (37.3)	19 (32.3)	3 (5.1)	3
5 (E)	1 (3.2)	10 (32.3)	9 (29.0)	7 (22.6)	4 (12.9)	3
5 (C)	6 (9.7)	15 (24.2)	18 (29.0)	11 (17.7)	12 (19.4)	3
6 (E)	8 (25.8)	8 (25.8)	7 (22.6)	5 (16.1)	3 (9.7)	2
6 (C)	4 (11.3)	19 (30.6)	16 (25.8)	15 (24.2)	5 (8.1)	2
7 (E)	5 (16.1)	7 (22.6)	10 (32.3)	5 (16.1)	4 (12.9)	3
7 (C)	5 (8.1)	16 (25.8)	15 (24.2)	19 (30.6)	7 (11.3)	3
8 (E)	5 (16.1)	7 (22.6)	5 (16.1)	3 (9.7)	11 (35.5)	3
8 (C)	9 (14.5)	18 (29.0)	10 (16.1)	7 (11.3)	18 (29.0)	3
9 (E)	4 (12.9)	8 (25.8)	8 (25.8)	8 (25.8)	3 (9.7)	3
9 (C)	3 (4.8)	13 (21.0)	24 (38.7)	15 (24.2)	7 (11.3)	3
10 (E)	0	1 (3.2)	8 (25.8)	13 (41.9)	9 (29.0)	4
10 (C)	1 (1.7)	6 (10.0)	7 (11.7)	19 (31.7)	27 (45.0)	4
11 (E)	4 (12.9)	8 (25.8)	11 (35.5)	7 (22.6)	1 (3.2)	3
11 (C)	5 (8.1)	17 (27.4)	20 (32.3)	13 (21.0)	7 (11.3)	3
12 (E)	4 (12.9)	7 (22.6)	13 (41.9)	5 (16.1)	2 (6.5)	3
12 (C)	7 (11.3)	11 (17.7)	26 (41.9)	15 (24.2)	3 (4.8)	3
13 (E)	1 (3.2)	4 (12.9)	9 (29.0)	13 (41.9)	4 (12.9)	4
13 (C)	0	7 (11.5)	15 (24.6)	24 (39.3)	15 (24.6)	4
14 (E)	0	9 (29.0)	3 (9.7)	11 (35.5)	8 (25.8)	4
14 (C)	1 (1.7)	9 (15.0)	16 (26.7)	16 (26.7)	18 (30.0)	4
15 (E)	4 (12.9)	6 (19.4)	9 (29.0)	7 (22.6)	5 (16.1)	3
15 (C)	4 (6.5)	11 (17.7)	16 (25.8)	18 (29.0)	13 (21.0)	3.5
16 (E)	4 (12.9)	7 (22.6)	10 (32.3)	6 (19.4)	4 (12.9)	3
16 (C)	10 (16.1)	10 (16.1)	15 (24.2)	19 (30.6)	8 (12.9)	3

Table 2: Using Different Learning Styles: Frequencies and Percentages at the Time of the Pre-Test

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	0	1 (3.2)	1 (3.2)	8 (25.8)	21 (67.7)	5
1 (C)	0	2 (3.2)	2 (3.2)	27 (43.5)	31 (50.0)	4.5
2 (E)	4 (12.9)	5 (16.1)	14 (45.2)	7 (22.6)	1 (3.2)	3
2 (C)	2 (3.3)	6 (9.8)	24 (39.3)	21 (34.4)	8 (13.1)	3
3 (E)	1 (3.2)	4 (12.9)	14 (45.2)	9 (29.0)	3 (9.7)	3
3 (C)	2 (3.2)	10 (16.1)	12 (19.4)	18 (29.0)	20 (32.3)	4
4 (E)	6 (19.4)	11 (35.5)	8 (25.8)	4 (12.9)	2 (6.5)	2
4 (C)	8 (13.1)	13 (21.3)	18 (29.5)	13 (21.3)	9 (14.8)	3
5 (E)	2 (6.5)	7 (22.6)	13 (41.9)	6 (19.4)	3 (9.7)	3
5 (C)	6 (9.7)	13 (21.0)	18 (29.0)	18 (29.0)	7 (11.3)	3
6 (E)	6 (19.4)	12 (38.7)	9 (29.0)	4 (12.9)	0	2
6 (C)	5 (8.2)	16 (26.2)	23 (37.7)	13 (21.3)	4 (6.6)	3
7 (E)	6 (20.0)	9 (30.0)	11 (36.7)	2 (6.7)	2 (6.7)	2.5
7 (C)	8 (13.1)	13 (21.3)	24 (39.3)	11 (18.0)	5 (8.2)	3
8 (E)	7 (22.6)	4 (12.9)	11 (35.5)	2 (6.5)	7 (22.6)	3
8 (C)	11 (17.7)	17 (27.4)	8 (12.9)	12 (19.4)	14 (22.6)	3
9 (E)	7 (22.6)	10 (32.3)	7 (22.6)	5 (16.1)	2 (6.5)	2
9 (C)	3 (4.8)	13 (21.0)	22 (35.5)	16 (25.8)	8 (12.9)	3
10 (E)	0	2 (6.5)	7 (22.6)	11 (35.5)	11 (35.5)	4
10 (C)	1 (1.6)	9 (14.8)	7 (11.5)	16 (26.2)	28 (45.9)	4
11 (E)	6 (19.4)	11 (35.5)	10 (32.3)	2 (6.5)	2 (6.5)	2
11 (C)	6 (9.7)	16 (25.8)	23 (37.1)	9 (14.5)	8 (12.9)	3
12 (E)	8 (25.8)	8 (25.8)	7 (22.6)	6 (19.4)	2 (6.5)	3
12 (C)	4 (6.7)	11 (18.3)	25 (41.7)	15 (25.0)	5 (8.3)	3
13 (E)	2 (6.7)	5 (16.7)	15 (50.0)	6 (20.0)	2 (6.7)	3
13 (C)	0	15 (24.2)	17 (27.4)	23 (37.1)	7 (11.3)	3
14 (E)	3 (9.7)	7 (22.6)	10 (32.3)	6 (19.4)	5 (16.1)	3
14 (C)	3 (5.0)	9 (15.0)	16 (26.7)	17 (28.3)	15 (25.0)	4
15 (E)	5 (16.1)	2 (6.5)	10 (32.3)	13 (41.9)	1 (3.2)	3
15 (C)	4 (6.5)	14 (22.6)	14 (22.6)	22 (35.5)	8 (12.9)	3
16 (E)	5 (16.1)	12 (38.7)	9 (29.0)	4 (12.9)	1 (3.2)	2
16 (C)	9 (14.5)	14 (22.6)	12 (19.4)	18 (29.0)	9 (14.5)	3



Table 3: Students' Enjoyment of Different Learning Styles:  
Frequencies and Percentages at the Time of the Pre-Test

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	2 (6.5)	4 (12.9)	3 (9.7)	7 (22.6)	15 (48.4)	4
1 (C)	1 (1.6)	3 (4.8)	6 (9.7)	17 (27.4)	35 (56.5)	5
2 (E)	3 (9.7)	6 (19.4)	13 (41.9)	6 (19.4)	3 (9.7)	3
2 (C)	3 (4.8)	7 (11.3)	19 (30.6)	26 (41.9)	7 (11.3)	4
3 (E)	3 (9.7)	2 (6.5)	14 (45.2)	8 (25.8)	4 (12.9)	3
3 (C)	2 (3.2)	13 (21.0)	11 (17.7)	24 (38.7)	12 (19.4)	4
4 (E)	4 (12.9)	7 (22.6)	11 (35.5)	6 (19.4)	3 (9.7)	3
4 (C)	4 (6.5)	9 (14.5)	25 (40.3)	14 (22.6)	10 (16.1)	3
5 (E)	1 (3.3)	8 (26.7)	8 (26.7)	9 (30.0)	4 (13.3)	3
5 (C)	5 (8.1)	13 (21.0)	16 (25.8)	21 (33.9)	7 (11.3)	3
6 (E)	7 (22.6)	6 (19.4)	8 (25.8)	8 (25.8)	2 (6.5)	3
6 (C)	2 (3.3)	16 (26.7)	18 (30.0)	15 (25.0)	9 (15.0)	3
7 (E)	3 (9.7)	6 (19.4)	14 (45.2)	7 (22.6)	1 (3.2)	3
7 (C)	7 (11.3)	14 (22.6)	18 (29.0)	16 (25.8)	7 (11.3)	3
8 (E)	5 (16.1)	4 (12.9)	5 (16.1)	8 (25.8)	9 (29.0)	4
8 (C)	9 (14.5)	8 (12.9)	14 (22.6)	14 (22.6)	17 (27.4)	3.5
9 (E)	5 (16.1)	6 (19.4)	11 (35.5)	4 (12.9)	5 (16.1)	3
9 (C)	3 (4.8)	6 (9.7)	31 (50.0)	15 (24.2)	7 (11.3)	3
10 (E)	5 (16.1)	4 (12.9)	6 (19.4)	7 (22.6)	9 (29.0)	4
10 (C)	4 (6.5)	10 (16.1)	7 (11.3)	16 (25.8)	25 (40.3)	4
11 (E)	8 (25.8)	8 (25.8)	8 (25.8)	6 (19.4)	1 (3.2)	2
11 (C)	5 (8.2)	13 (21.3)	27 (44.3)	11 (18.0)	5 (8.2)	3
12 (E)	6 (19.4)	10 (32.3)	7 (22.6)	6 (19.4)	2 (6.5)	2
12 (C)	6 (9.7)	9 (14.5)	21 (33.9)	19 (30.6)	7 (11.3)	3
13 (E)	4 (12.9)	10 (32.3)	8 (25.8)	7 (22.6)	2 (6.5)	3
13 (C)	0	13 (21.0)	14 (22.6)	19 (30.6)	16 (25.8)	4
14 (E)	2 (6.5)	11 (35.5)	9 (29.0)	3 (9.7)	6 (19.4)	3
14 (C)	2 (3.3)	10 (16.4)	10 (16.4)	24 (39.3)	15 (24.6)	4
15 (E)	2 (6.5)	11 (35.5)	7 (22.6)	4 (12.9)	7 (22.6)	3
15 (C)	3 (4.8)	13 (21.0)	16 (25.8)	20 (32.3)	10 (16.1)	3
16 (E)	9 (29.0)	10 (32.3)	6 (19.4)	1 (3.2)	5 (16.1)	2
16 (C)	4 (6.5)	16 (25.8)	13 (21.0)	14 (22.6)	15 (24.2)	3

Table 4: Students' Enjoyment of Using Different Resources:  
Frequencies and Percentages at the Time of the Pre-Test

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	6 (19.4)	0	12 (38.7)	7 (22.6)	6 (19.4)	3
1 (C)	1 (1.6)	2 (3.2)	19 (30.6)	20 (32.3)	20 (32.3)	4
2 (E)	4 (12.9)	7 (22.6)	7 (22.6)	9 (29.0)	4 (12.9)	3
2 (C)	5 (8.2)	9 (14.8)	15 924.6)	26 (42.6)	6 (9.8)	4
3 (E)	6 (19.4)	4 (12.9)	5 (16.1)	4 (12.9)	12 (38.7)	4
3 (C)	9 (14.5)	12 (19.4)	10 (16.1)	12 (19.4)	19 (30.6)	3.5
4 (E)	4 (12.9)	4 (12.9)	8 (25.8)	11 (35.5)	4 (12.9)	3
4 (C)	6 (9.8)	6 (9.8)	13 (21.3)	18 (29.5)	18 (29.5)	4
5 (E)	8 (25.8)	6 (19.4)	2 (6.5)	12 (38.7)	3 (9.7)	3
5 (C)	10 (16.1)	10 (16.1)	17 (27.4)	14 (22.6)	11 (17.7)	3
6 (E)	3 (9.7)	5 (16.1)	8 (25.8)	11 (35.5)	4 (12.9)	3
6 (C)	5 (8.2)	6 (9.8)	12 (19.7)	20 (32.8)	18 (29.5)	4
7 (E)	4 (12.9)	3 (9.7)	5 (16.1)	11 (35.5)	8 (25.8)	4
7 (C)	5 (8.2)	4 (6.6)	16 (26.2)	19 (31.1)	17 (27.9)	4
8 (E)	6 (19.4)	6 (19.4)	5 (16.1)	10 932.3)	4 (12.9)	3
8 (C)	12 (19.4)	16 (25.8)	18 (29.0)	9 (14.5)	7 (11.3)	3

**Table 5: Students' Description Their History Teacher: Frequencies and Percentages at the Time of the Pre-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	3 (9.7)	0	4 (12.9)	7 (22.6)	17 (54.8)	5
1 (C)	2 (3.3)	4 (6.6)	4 (6.6)	15 (24.6)	36 (59.0)	5
2 (E)	0	1 (3.2)	4 (12.9)	5 (16.1)	21 (67.7)	5
2 (C)	4 (6.6)	1 (1.6)	12 (19.7)	15 (24.6)	29 (47.5)	4
3 (E)	2 (6.7)	1 (3.3)	4 (13.3)	5 (16.7)	18 (60.0)	5
3 (C)	6 (10.0)	2 (3.3)	10 (16.7)	11 (18.3)	31 (51.7)	5
4 (E)	3 (9.7)	1 (3.2)	8 (25.8)	5 (16.1)	14 (45.2)	4
4 (C)	10 (16.7)	8 (13.3)	11 (18.3)	8 (13.3)	23 (38.3)	4
5 (E)	2 (6.5)	0	2 (6.5)	11 (35.5)	16 (51.6)	5
5 (C)	6 (9.8)	4 (6.6)	12 (19.7)	15 (24.6)	24 (39.3)	4
6 (E)	1 (3.2)	3 (9.7)	2 (6.5)	5 (16.1)	20 (64.5)	5
6 (C)	3 (4.8)	6 (9.7)	10 (16.1)	16 (25.8)	27 (43.5)	4
7 (E)	3 (9.7)	4 (12.9)	6 (19.4)	5 (16.1)	13 (41.9)	4
7 (C)	12 (19.7)	5 (8.2)	15 (24.6)	9 (14.8)	20 (32.8)	3
8 (E)	4 (12.9)	2 (6.5)	7 (22.6)	4 (12.9)	14 (45.2)	4
8 (C)	5 (8.1)	7 (11.3)	10 (16.1)	12 (19.4)	28 (45.2)	4
9 (E)	5 (16.1)	2 (6.5)	5 (16.1)	8 (25.8)	11 (35.5)	4
9 (C)	12 (20.0)	8 (13.3)	13 (21.7)	9 (15.0)	18 (30.0)	3

**Table 6: Students' Enjoyment of History Content: Frequencies and Percentages at the Time of the Pre-Test**

Group	Hardly at all	A little	Reasonably	A lot	Very much	Median
(E)	2 (6.5)	3 (9.7)	6 (19.4)	12 (38.7)	8 (25.8)	4
(C)	2 (3.2)	2 (3.2)	13 (21.0)	27 (43.5)	18 (29.0)	4



**Table 7: Using Different Resources: Frequencies and Percentages at the Time of the Pre-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	2 (6.5)	2 (6.5)	5 9(16.1)	8 (25.8)	14 (45.20)	4
1 (C)	3 (4.8)	3 (4.8)	4 (6.5)	26 (41.9)	26 (41.9)	4
2 (E)	9 (29.0)	8 (25.8)	7 (22.6)	5 (16.1)	2 (6.5)	2
2 (C)	6 (9.7)	9 (14.5)	17 (27.4)	19 (30.6)	11 (17.7)	3
3 (E)	8 (25.8)	8 (25.8)	6 (19.4)	5 (16.1)	4 (12.9)	2
3 (C)	8 (12.9)	4 (6.5)	15 (24.2)	14 (22.6)	21 (33.9)	4
4 (E)	7 (22.6)	8 (25.8)	8 (25.8)	4 (12.9)	4 (12.9)	3
4 (C)	6 (9.8)	8 (13.1)	18 (29.5)	15 (24.6)	14 (23.0)	3
5 (E)	7 (22.6)	9 (29.0)	10 (32.3)	2 (6.5)	3 (9.7)	2
5 (C)	18 (29.0)	8 (12.9)	14 (22.6)	12 (19.4)	10 (16.10)	3
6 (E)	6 (19.4)	6 (19.4)	7 (22.6)	6 (19.4)	6 (19.4)	3
6 (C)	6 (12.9)	8 (9.7)	21 (33.9)	12 (19.4)	15 (24.2)	3
7 (E)	1 (3.2)	2 (6.5)	7 (22.6)	4 (12.9)	17 (54.8)	5
7 (C)	6 (9.7)	4 (6.5)	10 (16.1)	23 (37.1)	19 (30.6)	4
8 (E)	9 (29.0)	5 (16.1)	7 (22.6)	8 (25.8)	2 (6.5)	3
8 (C)	9 (14.5)	9 (14.5)	20 (32.3)	14 (22.6)	10 (16.1)	3

**Table 8 : Importance of History, Geography and Science at the Time of the Pre-test: Frequencies and Percentages**

Item	1	2	3	4	5	Median
His (E)	0	2 (6.5)	6 (19.4)	8 (25.8)	15 (48.4)	4
His (C)	0	1 (1.6)	8 (12.9)	17 (27.4)	36 (58.1)	5
Geo (E)	0	3 (9.7)	5 (16.1)	10 (32.3)	13 (41.9)	4
Geo (C)	3 (4.8)	1 (1.6)	15 (24.2)	21 (33.9)	22 (35.5)	4
Sci (E)	1 (3.2)	5 (16.1)	4 (12.9)	8 (25.8)	13 (41.9)	4
Sci (C)	2 (3.2)	5 (8.1)	7 (11.3)	23 (37.1)	25 (40.3)	4

**Table 9: The reasons that Make History Important: Frequencies and Percentages at the Time of the Pre-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	1 (3.2)	6 9(19.4)	4 (12.9)	11 (35.5)	9 (29.0)	4
1 (C)	4 (6.5)	5 (8.1)	18 (29.0)	14 (22.6)	21 (33.9)	4
2 (E)	0	3 (9.7)	6 (19.4)	14 (45.2)	8 (25.8)	4
2 (C)	3 (4.8)	2 (3.2)	15 (24.2)	25 (40.3)	17 (27.4)	4
3 (E)	0	1 (3.2)	10 (32.3)	11 (35.5)	9 (29.0)	4
3 (C)	1 (1.6)	3 (4.8)	17 (27.4)	22 (35.5)	19 (30.6)	4
4 (E)	0	2 (6.5)	9 (29.0)	6 (19.4)	14 (45.2)	4
4 (C)	2 (3.3)	3 (4.9)	15 (24.6)	21 (34.4)	20 (32.8)	4
5 (E)	0	1 (3.2)	8 (25.8)	11 (35.5)	11 (35.5)	4
5 (C)	2 (3.2)	1 (1.6)	14 (22.6)	23 (37.1)	22 (35.5)	4
6 (E)	1 (3.2)	2 (6.5)	7 (22.6)	8 (25.8)	13 (41.9)	4
6 (C)	0	1 (1.6)	7 (11.3)	23 (37.1)	31 (50.0)	4.5
7 (E)	5 (16.1)	2 (6.5)	6 (19.4)	7 (22.6)	11 (35.5)	4
7 (C)	4 (6.5)	1 (1.6)	11 (17.7)	20 (32.3)	26 (41.9)	4
8 (E)	8 (25.8)	2 (6.5)	7 (22.6)	9 (29.0)	5 (16.1)	3
8 (C)	6 (9.7)	9 (14.5)	18 (29.0)	15 (24.2)	14 (22.6)	3

**Table 10: Trying Different Learning Styles: Frequencies and Percentages at the Time of the Pre-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	4 (12.9)	7 (22.6)	8 (25.8)	9 (29.0)	3 (9.7)	3
1 (C)	2 (4.9)	8 (13.1)	20 (32.8)	20 (32.8)	10 (16.4)	3
2 (E)	3 (9.7)	11 (35.5)	10 (32.3)	4 (12.9)	3 (9.7)	3
2 (C)	3 (4.8)	16 (25.8)	17 (27.4)	16 (25.8)	10 (16.1)	3
3 (E)	3 (9.7)	10 (32.2)	6 (19.4)	6 (19.4)	6 (19.4)	3
3 (C)	3 (5.2)	6 (10.3)	22 (37.9)	19 (32.8)	8 (13.8)	3
4 (E)	4 (12.9)	6 (19.4)	4 (12.9)	8 (25.8)	9 (29.0)	4
4 (C)	3 (5.2)	9 (15.5)	17 (29.3)	21 (36.2)	8 (13.8)	3.5
5 (E)	2 (6.5)	3 (9.7)	9 (29.0)	9 (29.0)	8 (25.8)	4
5 (C)	4 (6.6)	9 (14.8)	15 (24.6)	18 (29.5)	15 (24.6)	4
6 (E)	1 (3.2)	4 (12.9)	9 (29.0)	5 (16.1)	12 (38.7)	4
6 (C)	3 (4.9)	4 (6.6)	17 (27.9)	14 (23.0)	23 (37.7)	4

Table 11: Students' Enjoyment of History, Geography and Science at the Time of the Pre-test : Frequencies and Percentages

Item	1	2	3	4	5	Median
His (E)	0	2 (6.5)	7 (22.6)	13 (41.9)	9 (29 0)	4
His (C)	0	4 (6.5)	5 (8.1)	23 (37.1)	30 (48.4)	4
Geo (E)	0	3 (9.7)	9 (29.0)	10 (32.3)	9 (29.0)	4
Geo (C)	1 (1.6)	1 (1.6)	22 (35.5)	29 (46.8)	9 (14.5)	4
Sci (E)	0	8 (25.8)	8 (25.8)	7 (22.6)	8 (25.8)	3
Sci (C)	3 (4.8)	7 (11.3)	19 (30.6)	18 (29.0)	15 (24.2)	4

Table 12: The Easiness of History, Geography and Science at the Time of the Pre-test: Frequencies and Percentages

Item	1	2	3	4	5	Median
His (E)	7 (22.6)	6 (19.4)	10 (32.3)	6 (19.4)	2 (6.5)	3
His (C)	4 (6.5)	15 (24.2)	34 (54.8)	4 (6.5)	4 (6.5)	3
Geo (E)	3 (9.7)	11 (35.5)	13 (41.9)	2 (6.5)	2 (6.5)	3
Geo (C)	5 (8.1)	18 (29.0)	27 (43.5)	8 (12.9)	4 (6.5)	3
Sci (E)	2 (6.5)	4 (12.9)	14 (45.2)	9 (29.0)	2 (6.5)	3
Sci (C)	0	6 (9.7)	23 (37.1)	21 (33.9)	12 (19.4)	4

Table 13: The Easiness of Memorization of History, Geography and Science at the Time of thePre-test: Frequencies and Percentages

Item	1	2	3	4	5	Median
His (E)	7 (22.6)	7 (22.6)	10 (32.3)	6 (19.4)	1 (3.2)	3
His (C)	3 (4.8)	23 (37.1)	24 (38.7)	6 (9.7)	6 (9.70)	3
Geo (E)	4 (12.9)	10 (32.3)	14 (45.2)	2 (6.5)	1 (3.2)	3
Geo (C)	4 (6.5)	16 (25.8)	29 (46.8)	9 (14.5)	4 (6.5)	3
Sci (E)	2 (6.5)	4 (12.9)	14 (45.2)	8 (25.8)	3 (9.7)	3
Sci (C)	7 (11.3)	8 (12.9)	25 (40.3)	14 (22.6)	8 (12.9)	3

Table 14: Students' Intention to Take History, Geography and Science at Higher Education for the Two Groups at the Time of the Pre-test

Items	Group	Yes	No	Total	Missing
History	Experiment	14 (45.2)	17 (54.8)	31	0
	Control	33 (53.2)	29 (46.8)	62	0
Geography	Experiment	16 (51.6)	15 (48.4)	31	0
	Control	21 (33.9)	41 (66.1)	62	0
Science	Experiment	16 (51.6)	15 (48.4)	31	0
	Control	27 (43.5)	35 (56.5)	62	0



**Table 15: Students' Perception to Their Teacher's Knowledge:  
Frequencies and Percentages at the Time of the Pre-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
(E)	0	1 (3.2)	6 (19.4)	11 (35.5)	13 (41.9)	4
(C)	1 (1.6)	0	7 (11.3)	34 (54.8)	20 (32.3)	4

**Table 16: Students' Liking Thier Teacher : Frequencies and Percentages at the  
Time of the Pre-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
(E)	0	1 (3.2)	6 (19.4)	9 (29.0)	15 (48.4)	4
(C)	0	1 (1.6)	10 (16.1)	28 (45.2)	23 (37.1)	4

## Appendix (12) The Frequencies of the Experimental and Control Groups at the Time of the Post-test

Table 1: Students' Preferred Different Learning Styles: Frequencies and Percentages at the Time of the Post-test (%)

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	1 (3.2)	7 (22.6)	6 (19.4)	6 (19.4)	11 (35.5)	4
(C)	1 (1.6)	4 (6.5)	7 (11.3)	19 (30.6)	31 (50.0)	4.50
2 (E)	3 (9.7)	6 (19.4)	13 (41.9)	5 (16.1)	4 (12.9)	3
(C)	1 (1.7)	10 (16.7)	23 (38.3)	19 (31.7)	7 (11.7)	3
3 (E)	1 (3.2)	4 (12.9)	10 (32.3)	7 (22.6)	9 (29.0)	4
(C)	1 (1.6)	11 (17.7)	16 (25.8)	21 (33.9)	13 (21.0)	4
4 (E)	6 (19.4)	8 (25.8)	6 (19.4)	9 (29.0)	2 (6.5)	3
(C)	8 (12.9)	15 (24.2)	19 (30.6)	13 (12.0)	7 (11.3)	3
5 (E)	2 (6.5)	11 (35.5)	6 (19.4)	8 (25.8)	4 (12.9)	3
(C)	7 (11.5)	14 (23.0)	15 (24.6)	16 (26.2)	9 (14.8)	3
6 (E)	9 (29.0)	4 (12.9)	7 (22.6)	9 (29.0)	2 (6.5)	3
(C)	8 (12.9)	12 (19.4)	19 (30.6)	17 (27.4)	6 (9.7)	3
7 (E)	5 (16.1)	6 (19.4)	10 (32.3)	7 (22.6)	3 (9.7)	3
(C)	4 (6.5)	16 (25.8)	23 (37.1)	13 (21.0)	6 (9.7)	3
8 (E)	5 (16.1)	4 (12.9)	5 (16.1)	10 (32.3)	7 (22.6)	4
(C)	12 (19.4)	7 (11.3)	8 (12.9)	15 (24.2)	20 (32.3)	4
9 (E)	9 (29.0)	7 (22.6)	7 (22.6)	1 (3.2)	7 (22.6)	2
(C)	9 (14.5)	7 (11.3)	23 (37.1)	12 (19.4)	11 (17.7)	3
10 (E)	1 (3.2)	1 (3.2)	7 (22.6)	9 (29.0)	13 (41.9)	4
(C)	-	3 (4.9)	14 (23.0)	16 (26.2)	28 (45.9)	4
11 (E)	8 (25.8)	10 (32.3)	8 (25.8)	3 (9.7)	2 (6.5)	2
(C)	5 (8.1)	10 (16.1)	23 (37.1)	18 (29.0)	6 (9.7)	3
12 (E)	9 (29.0)	6 (19.4)	8 (25.8)	8 (25.8)	-	3
(C)	7 (11.3)	14 (22.6)	19 (30.6)	14 (22.6)	8 (12.9)	3
13 (E)	4 (12.9)	4 (12.9)	13 (41.9)	6 (19.4)	4 (12.9)	3
(C)	1 (1.6)	10 (16.1)	19 (30.6)	20 (32.3)	12 (19.4)	4
14 (E)	4 (12.9)	7 (22.6)	5 (16.1)	8 (25.8)	7 (22.6)	3
(C)	2 (3.2)	6 (9.7)	20 (32.3)	20 (32.3)	14 (22.6)	4
15 (E)	4 (12.9)	7 (22.6)	11 (35.5)	7 (22.6)	2 (6.5)	3
(C)	3 (4.8)	10 (16.1)	17 (27.4)	20 (32.3)	12 (19.4)	4
16 (E)	4 (12.9)	8 (25.8)	9 (29.0)	5 (16.1)	5 (16.1)	3
(C)	6 (9.7)	9 (14.5)	17 (27.4)	15 (24.2)	15 (24.2)	3

Table 2: Using Different Learning Styles: Frequencies and Percentages (%)

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	11 (35.5)	16 (51.6)	1 (3.2)	-	3 (9.7)	2
(C)	-	1 (1.6)	5 (8.1)	14 (22.6)	42 (67.7)	5
2 (E)	1 (3.2)	3 (9.7)	8 (25.8)	12 (38.7)	7 (22.6)	4
(C)	8 (12.9)	11 (17.7)	12 (19.4)	21 (33.9)	10 (16.1)	3.50
3 (E)	3 (9.7)	8 (25.8)	5 (16.1)	10 (32.3)	5 (16.1)	3
(C)	6 (9.7)	8 (12.9)	16 (25.8)	19 (30.6)	13 (21.0)	4
4 (E)	1 (3.2)	4 (12.9)	1 (3.2)	15 (48.4)	10 (32.3)	4
(C)	17 (28.3)	19 (31.7)	9 (15.0)	9 (15.0)	6 (10.0)	2
5 (E)	1 (3.2)	4 (12.9)	3 (9.7)	16 (51.6)	7 (22.6)	4
(C)	13 (21.0)	11 (17.7)	12 (19.4)	20 (32.3)	6 (9.7)	3
6 (E)	2 (6.5)	7 (22.6)	9 (29.0)	7 (22.6)	6 (19.4)	3
(C)	9 (14.5)	17 (27.4)	17 (27.4)	11 (17.7)	8 (12.9)	3
7 (E)	-	6 (19.4)	6 (19.4)	10 (32.3)	9 (29.0)	4
(C)	13 (21.0)	15 (24.2)	19 (30.6)	11 (17.7)	4 (6.5)	3
8 (E)	17 (54.8)	7 (22.6)	4 (12.9)	2 (6.5)	1 (3.2)	1
(C)	39 (62.9)	7 (11.3)	6 (9.7)	6 (9.7)	4 (6.5)	1
9 (E)	-	1 (3.2)	1 (3.2)	11 (35.5)	18 (58.1)	5
(C)	17 (27.4)	16 (25.8)	13 (21.0)	9 (14.5)	7 (11.3)	2
10 (E)	-	5 (16.1)	9 (29.0)	9 (29.0)	8 (25.8)	4
(C)	2 (3.3)	2 (3.3)	12 (20.0)	20 (33.3)	24 (40.0)	4
11 (E)	1 (3.2)	6 (19.4)	6 (19.4)	11 (35.5)	7 (22.6)	4
(C)	16 (25.8)	18 (29.0)	12 (19.4)	14 (22.6)	2 (3.2)	2
12 (E)	4 (13.3)	6 (20.0)	8 (26.7)	6 (20.0)	6 (20.0)	3
(C)	20 (32.3)	16 (25.8)	11 (17.7)	8 (12.9)	7 (11.3)	2
13 (E)	1 (3.2)	4 (12.9)	8 (25.8)	8 (25.8)	10 (32.3)	4
(C)	3 (4.9)	13 (21.3)	23 (27.7)	11 (18.0)	11 (18.0)	3
14 (E)	2 (6.5)	3 (9.7)	5 (16.1)	11 (35.5)	10 (32.3)	4
(C)	4 (6.5)	9 (14.5)	18 (29.0)	20 (32.3)	11 (17.7)	3.50
15 (E)	5 (16.1)	7 (22.6)	12 (38.7)	3 (9.7)	4 (12.9)	3
(C)	9 (14.5)	9 (14.5)	14 (22.6)	19 (30.6)	11 (17.7)	3
16 (E)	5 (16.1)	6 (19.4)	10 (32.3)	4 (12.9)	6 (19.4)	3
(C)	16 (25.8)	14 (22.6)	13 (21.0)	10 (16.1)	9 (14.5)	3



Table 3 : Students' Enjoyment of Different Learning Styles: Frequencies and Percentages

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	0	8 (25.8)	5 (16.1)	5 (16.1)	6 (19.4)	4
(C)	2 (3.2)	3 (4.8)	11 (17.7)	13 (21.0)	33 (53.2)	5
2 (E)	4 (12.9)	10 (32.3)	6 (19.4)	9 (29.0)	2 (6.5)	3
(C)	6 (9.7)	10 (16.1)	17 (27.4)	19 (30.6)	10 (16.1)	3
3 (E)	2 (6.5)	6 (19.4)	7 (22.6)	10 (32.3)	6 (19.4)	4
(C)	6 (10.2)	8 (13.6)	14 (23.7)	18 (30.5)	13 (22.0)	4
4 (E)	4 (12.9)	6 (19.4)	9 (29.0)	5 (16.1)	7 (22.6)	3
(C)	10 (16.4)	12 (19.7)	19 (31.1)	12 (19.7)	8 (13.1)	3
5 (E)	6 (19.4)	3 (9.7)	6 (19.4)	11 (35.5)	5 (16.1)	4
(C)	13 (22.0)	10 (16.9)	17 (28.8)	12 (20.3)	7 (11.9)	3
6 (E)	5 (16.1)	5 (16.1)	10 (32.3)	5 (16.1)	6 (19.4)	3
(C)	7 (11.3)	12 (19.4)	15 (24.2)	24 (38.7)	4 (6.5)	3
7 (E)	7 (24.1)	6 (20.7)	8 (27.6)	3 (10.3)	5 (17.2)	3
(C)	14 (23.7)	12 (20.3)	13 (22.0)	13 (22.0)	7 (11.9)	3
8 (E)	7 (22.6)	4 (12.9)	5 (16.1)	3 (9.7)	12 (38.7)	3
(C)	18 (29.0)	5 (8.1)	6 (9.7)	14 (22.6)	19 (30.6)	4
9 (E)	6 (19.4)	6 (19.4)	6 (19.4)	6 (19.4)	7 (22.6)	3
(C)	7 (11.3)	9 (14.5)	19 (30.6)	18 (29.0)	9 (14.5)	3
10 (E)	1 (3.2)	5 (16.1)	6 (19.4)	8 (25.8)	11 (35.5)	4
(C)	6 (9.8)	3 (4.9)	9 (14.8)	19 (31.1)	24 (39.3)	4
11 (E)	7 (22.6)	4 (12.9)	6 (19.4)	9 (29.0)	5 (16.1)	3
(C)	8 (12.9)	16 (25.8)	22 (35.5)	10 (16.1)	6 (9.7)	3
12 (E)	9 (29.0)	5 (16.1)	6 (19.4)	10 (32.3)	1 (3.2)	3
(C)	6 (10.0)	10 (16.7)	16 (26.7)	21 (35.0)	7 (11.7)	3
13 (E)	3 (9.7)	8 (25.8)	10 (32.3)	5 (16.1)	5 (16.1)	3
(C)	2 (3.3)	4 (6.6)	20 (32.8)	26 (42.6)	9 (14.8)	4
14 (E)	2 (6.7)	4 (13.3)	10 (33.3)	10 (33.3)	4 (13.3)	3
(C)	3 (5.0)	9 (15.0)	14 (23.3)	24 (40.0)	10 (16.7)	4
15 (E)	3 (9.7)	7 (22.6)	11 (35.5)	6 (19.4)	4 (12.9)	3
(C)	7 (11.3)	5 (8.1)	14 (22.6)	21 (33.9)	15 (24.2)	4
16 (E)	7 (22.6)	6 (19.4)	9 (29.0)	3 (9.7)	6 (19.4)	3
(C)	10 (16.1)	9 (14.5)	18 (29.0)	11 (17.7)	14 (22.6)	3

Table 4 :Students' Enjoyment of Using Different Resources :Frequencies and Percentages

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	2 (6.5)	2 (6.5)	8 (25.8)	10 (32.3)	9 (29.0)	4
(C)	2 (3.2)	1 (1.6)	10 (16.1)	26 (41.9)	23 (37.1)	4
2 (E)	3 (9.7)	1 (3.2)	15 (48.4)	8 (25.8)	4 (12.9)	3
(C)	2 (3.2)	7 (11.3)	24 (38.7)	20 (32.3)	9 (14.5)	3
3 (E)	3 (9.7)	3 (9.7)	3 (9.7)	8 (25.8)	14 (45.2)	4
(C)	8 (12.9)	6 (9.7)	10 (16.1)	12 (19.4)	26 (41.9)	4
4 (E)	3 (9.7)	2 (6.5)	5 (16.1)	9 (29.0)	12 (38.7)	4
(C)	8 (12.9)	3 (4.8)	14 (22.6)	12 (19.4)	25 (40.3)	4
5 (E)	6 (19.4)	6 (19.4)	6 (19.4)	7 (22.6)	6 (19.4)	3
(C)	10 (16.1)	8 (12.9)	19 (30.6)	19 (30.6)	6 (9.7)	3
6 (E)	1 (3.2)	1 (3.2)	5 (16.1)	12 (38.7)	12 (38.7)	4
(C)	3 (4.8)	7 (11.3)	14 (22.6)	21 (33.9)	17 (27.4)	4
7 (E)	-	3 (9.7)	3 (9.7)	8 (25.8)	17 (54.8)	5
(C)	4 (6.5)	5 (8.1)	11 (17.7)	21 (33.9)	21 (33.9)	4
8 (E)	-	7 (22.6)	7 (22.6)	14 (45.2)	3 (9.7)	4
(C)	9 (14.8)	13 (21.3)	12 (19.7)	14 (23.0)	13 (21.3)	3

**Table 5 : Students' Description of Their Teacher: Frequencies and Percentages (%)**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	2 (6.5)	1 (3.2)	5 (16.1)	9 (29.0)	14 (45.2)	4
(C)	3 (4.8)	1 (1.6)	4 (6.5)	6 (9.7)	48 (77.4)	5
2 (E)	1 (3.2)	1 (3.2)	6 (19.4)	7 (22.6)	16 (51.6)	5
(C)	1 (1.6)	5 (8.1)	5 (8.1)	15 (24.2)	36 (58.1)	5
3 (E)	1 (3.2)	1 (3.2)	4 (12.9)	9 (29.0)	16 (51.6)	5
(C)	1 (1.6)	0	9 (14.5)	7 (11.3)	45 (72.6)	5
4 (E)	0	5 (16.1)	8 (25.8)	10 (32.3)	8 (25.8)	4
(C)	5 (8.1)	4 (6.5)	9 (14.5)	17 (27.4)	27 (43.5)	4
5 (E)	1 (3.2)	3 (9.7)	6 (19.4)	7 (22.6)	14 (45.2)	4
(C)	5 (8.2)	3 (4.9)	6 (9.8)	12 (19.7)	35 (57.4)	5
6 (E)	7 (22.6)	1 (3.2)	8 (25.8)	7 (22.6)	8 (25.8)	3
(C)	3 (4.8)	4 (6.5)	10 (16.1)	15 (24.2)	30 (48.4)	4
7 (E)	3 (9.7)	1 (3.2)	7 (22.6)	9 (29.0)	11 (35.5)	4
(C)	2 (3.3)	3 (4.9)	6 (9.8)	13 (21.3)	37 (60.7)	5
8 (E)	4 (13.3)	4 (13.3)	4 (13.3)	9 (30.0)	9 (30.0)	4
(C)	6 (9.8)	3 (4.9)	6 (9.8)	14 (23.0)	32 (52.5)	5
9 (E)	7 (22.6)	2 (6.5)	7 (22.6)	5 (16.1)	10 (32.3)	3
(C)	4 (6.5)	5 (8.1)	14 (22.6)	14 (22.6)	25 (40.3)	4

**Table 6 :Students' Enjoyment of Content of the History Curriculum:  
Frequencies and Percentages (%)**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
His (E)	1 (3.2)	1 (3.2)	12 (38.7)	9 (29.0)	8 (25.8)	4
(C)	1 (1.6)	2 (3.2)	9 (14.5)	28 (45.2)	22 (35.5)	4

**Table 7 : Students' Enjoyment of History, Geography and Science:  
Frequencies and Percentages (%)**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
His (E)	0	0	5 (16.1)	15 (48.4)	11 (35.5)	4
(C)	0	3 (4.8)	4 (6.5)	27 (43.5)	28 (45.2)	4
Geo (E)	1 (3.2)	4 (12.9)	7 (22.6)	10 (32.3)	9 (29.0)	4
(C)	1 (1.6)	5 (8.1)	18 (29.0)	22 (35.5)	16 (25.8)	4
Sci (E)	1 (3.2)	3 (9.7)	9 (29.0)	8 (25.8)	10 (32.3)	4
(C)	1 (1.6)	4 (6.5)	19 (30.6)	26 (41.9)	12 (19.4)	4



Table 8 : Trying Different Learning Styles: Frequencies and Percentages (%)

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	10 (32.3)	5 (16.1)	5 (16.1)	5 (16.1)	6 (19.4)	3
(C)	3 (4.8)	20 (32.3)	20 (32.3)	15 (24.2)	4 (6.5)	3
2 (E)	9 (29.0)	8 (25.8)	7 (22.6)	6 (19.4)	1 (3.2)	2
(C)	5 (8.1)	20 (32.3)	23 (37.1)	9 (14.5)	5 (8.1)	3
3 (E)	9 (30.0)	5 (16.7)	9 (30.0)	4 (13.3)	3 (10.0)	3
(C)	5 (8.1)	14 (22.6)	23 (37.1)	14 (22.6)	6 (9.7)	3
4 (E)	8 (25.8)	6 (19.4)	2 (6.5)	10 (32.3)	5 (16.1)	3
(C)	5 (8.1)	7 (11.5)	15 (24.6)	22 (36.1)	12 (19.7)	4
5 (E)	8 (26.7)	5 (16.7)	5 (16.7)	6 (20.0)	6 (20.0)	3
(C)	8 (13.1)	8 (13.1)	16 (26.2)	19 (31.1)	10 (16.4)	3
6 (E)	0	4 (12.9)	6 (19.4)	8 (25.8)	13 (41.9)	4
(C)	2 (3.2)	3 (4.8)	11 (17.7)	16 (25.8)	30 (48.4)	4

Table 9 : Using Different Resources: Frequencies and Percentages (%)

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	0	0	2 (6.5)	5 (16.1)	24 (77.4)	5
(C)	4 (6.5)	5 (8.1)	6 (9.7)	19 (30.6)	28 (45.2)	4
2 (E)	8 (25.8)	5 (16.1)	4 (12.9)	9 (29.0)	5 (16.1)	3
(C)	14 (22.6)	10 (16.1)	14 (22.6)	14 (22.6)	10 (16.1)	3
3 (E)	20 (64.5)	4 (12.9)	3 (9.7)	3 (9.7)	1 (3.2)	1
(C)	33 (53.2)	4 (6.5)	4 (6.5)	8 (12.9)	13 (21.0)	1
4 (E)	20 (64.5)	3 (9.7)	5 (16.1)	2 (6.5)	1 (3.2)	1
(C)	33 (53.2)	2 (3.2)	7 (11.3)	7 (11.3)	13 (21.0)	1
5 (E)	21 (67.7)	5 (16.1)	2 (6.5)	5 (6.5)	1 (3.2)	1
(C)	35 (57.4)	4 (6.6)	9 (14.8)	8 (13.1)	5 (8.2)	1
6 (E)	-	-	6 (19.4)	11 (35.5)	14 (45.2)	4
(C)	22 (35.5)	6 (9.7)	8 (12.9)	14 (22.6)	12 (19.4)	3
7 (E)	3 (9.7)	1 (3.2)	6 (19.4)	11 (35.5)	10 (32.3)	4
(C)	20 (32.3)	6 (9.7)	9 (14.5)	12 (19.4)	15 (24.2)	3
8 (E)	-	-	3 (9.7)	10 (32.3)	18 (58.1)	5
(C)	35 (56.5)	3 (9.8)	7 (11.3)	9 (14.5)	8 (12.9)	1

Table 10 : Importance of History: Frequencies and Percentages (%)

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
His (E)	-	2 (6.5)	6 (19.4)	8 (25.8)	15 (48.4)	5
His (C)	-	1 (1.6)	8 (12.9)	17 (27.4)	36 (58.1)	4
Geo (E)	-	1 (3.2)	8 (25.8)	11 (35.5)	11 (35.5)	4
Geo (C)	2 (3.2)	2 (3.2)	16 (25.8)	26 (41.9)	16 (25.8)	4
Sci (E)	-	2 (6.5)	6 (19.4)	9 (29.0)	14 (45.2)	4
Sci (C)	2 (3.2)	4 (6.5)	10 (16.1)	12 (19.4)	34 (54.8)	5

Table 11 : Reasons for the Importance of History

Item	not at all important	very little important	a little important	a lot of importance	very important	Median
1 (E)	3 (9.7)	8 (25.8)	8 (25.8)	8 (25.8)	4 (12.9)	3
(C)	4 (6.5)	8 (12.9)	16 (25.8)	20 (32.3)	14 (22.6)	4
2 (E)	3 (9.7)	2 (6.5)	4 (12.9)	12 (38.7)	10 (32.3)	4
(C)	1 (1.6)	3 (4.8)	17 (27.4)	22 (35.5)	19 (30.6)	4
3 (E)	2 (6.5)	2 (6.5)	9 (29.0)	7 (22.6)	11 (35.5)	4
(C)	2 (3.2)	10 (16.1)	14 (22.6)	19 (30.6)	17 (27.4)	4
4 (E)	1 (3.2)	4 (12.9)	7 (22.6)	8 (25.8)	11 (35.5)	4
(C)	6 (9.7)	5 (8.1)	18 (29.0)	19 (30.6)	14 (22.6)	4
5 (E)	2 (6.5)	1 (3.2)	6 (19.4)	11 (35.5)	11 (35.5)	4
(C)	2 (3.2)	4 (6.5)	14 (22.6)	24 (38.7)	18 (29.0)	4
6 (E)	2 (6.5)	1 (3.2)	4 (12.9)	10 (32.3)	11 (45.2)	4
(C)	1 (1.6)	3 94.8)	10 (16.1)	28 (45.2)	20 (32.3)	4
7 (E)	5 (16.1)	2 (6.5)	4 (12.9)	6 (19.4)	14 (45.2)	4
(C)	4 (6.5)	5 (8.1)	12 (19.4)	16 (25.8)	25 (40.3)	4
8 (E)	6 (19.4)	5 (16.1)	11 (35.5)	4 (12.9)	5 (16.1)	3
(C)	8 (12.9)	15 (24.2)	15 (24.2)	15 (24.2)	9 (14.5)	3

Table 12 : The Easiness of History, Geography and Science: Frequencies and Percentages

Item	very easy	easy	easy/difficult	hard	very hard	Median
His (E)	3 (9.7)	10 (32.3)	10 (32.3)	7 (22.6)	1 (3.2)	3
His (C)	16 (25.8)	26 (41.9)	16 (25.8)	3 (4.8)	1 (1.6)	2
Geo (E)	3 (9.7)	8 (25.8)	16 (51.6)	4 (12.9)	0	3
Geo (C)	7 (11.3)	18 (29.0)	30 (48.4)	5 (8.1)	2 (3.2)	3
Sci (E)	1 (3.2)	5 (16.1)	13 (41.9)	9 (29.0)	3 (9.7)	3
Sci (C)	2 (3.2)	8 (12.9)	23 (37.1)	20 (32.3)	9 (14.5)	3

Table 13 : Students' Intention to History, Geography and Science at Higher Education for the Two Groups:Frequencies and Percentages (%)

Items	Group	Yes	No	Total	Missing
History	Experiment	12 (40.0)	18 (60.0)	30	1
	Control	34 (54.8)	28 (45.2)	62	-
Geography	Experiment	10 (33.3)	20 (66.7)	30	1
	Control	18 (29.0)	44 (71.0)	62	-
Science	Experiment	18 (58.1)	13 (41.9)	31	-
	Control	26 (41.9)	36 (58.1)	62	-

Table 14 : The Easiness of Memorization and Remembrance of History, Geography and Science: Frequencies and Percentages (%)

Item	very easy	easy	easy/difficult	hard	very hard	Median
His (E)	6 (19.4)	9 (29.0)	10 (32.3)	5 (16.1)	1 (3.2)	3
His (C)	16 (25.8)	24 (38.7)	18 (29.0)	3 (4.8)	1 (1.6)	2
Geo (E)	7 (22.6)	9 (29.0)	10 (32.3)	4 (12.9)	1 (3.2)	2
Geo (C)	6 (9.7)	18 (29.0)	29 (46.8)	8 (12.9)	1 (1.6)	3
Sci (E)	3 (9.7)	11 (35.5)	11 (35.5)	3 (9.7)	3 (9.7)	3
Sci (C)	1 (1.6)	7 (11.3)	26 (41.9)	16 (25.8)	12 (19.4)	3

Table 15 : History Teacher's Knowledge: Frequencies and Percentages (%)

Group	Hardly at all	A little	Reasonably	A lot	Very much	Median
Experimental	0	0	7 (22.6)	15 (48.4)	9 (29.0)	
Control	0	1 (1.6)	1 (1.6)	31 (50.0)	29 (46.8)	4

Table 16 : Students' Respect of Their History Teacher: Frequencies and Percentages (%)

Group	Hardly at all	A little	Reasonably	A lot	Very much	Median
Experimental	0	1 (3.2)	3 (9.7)	12 (38.7)	15 (48.4)	4
Control	0	0	5 (8.1)	18 (29.0)	39 (62.9)	5



## Appendix (12) The Frequencies and Percentages of the Experimental and Control Groups at the Time of the Postponed-test

Table 1: Students' Preference Different Learning Styles:  
Frequencies and Percentages at the Time of the Postponed-Test

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	0	3 (9.7)	5 (16.1)	14 (45.2)	9 (29.0)	4
1 (C)	0	0	11 (17.7)	26 (41.9)	25 (40.3)	4
2 (E)	1 (3.2)	9 (29.0)	9 (29.0)	7 (22.6)	5 (16.1)	3
2 (C)	4 (6.5)	8 (12.9)	26 (41.9)	18 (29.0)	6 (9.7)	3
3 (E)	0	6 (19.4)	6 (19.4)	11 (35.5)	8 (25.8)	4
3 (C)	4 (6.6)	7 (11.5)	18 (29.5)	25 (41.0)	7 (11.5)	4
4 (E)	3 (9.7)	16 (51.6)	4 (12.9)	5 (16.1)	3 (9.7)	2
4 (C)	8 (12.9)	19 (30.6)	22 (35.5)	9 (14.5)	4 (6.5)	3
5 (E)	5 (16.1)	6 (19.4)	14 (45.2)	2 (6.5)	4 (12.9)	3
5 (C)	5 (8.2)	18 (29.5)	14 (23.0)	21 (34.4)	3 (4.9)	3
6 (E)	2 (6.5)	7 (22.6)	13 (41.9)	6 (19.4)	3 (9.7)	3
6 (C)	5 (8.1)	16 (25.8)	20 (32.3)	18 (29.0)	3 (4.8)	3
7 (E)	3 (9.7)	12 (38.7)	8 (25.8)	7 (22.6)	1 (3.2)	3
7 (C)	8 (12.9)	11 (17.7)	21 (33.9)	13 (21.0)	9 (14.5)	3
8 (E)	4 (12.9)	1 (3.2)	5 (16.1)	8 (25.8)	13 (41.9)	4
8 (C)	14 (22.6)	6 (9.7)	11 (17.7)	9 (14.5)	22 (35.5)	3.5
9 (E)	9 (29.0)	5 (16.1)	6 (19.4)	7 (22.6)	4 (12.9)	3
9 (C)	6 (9.8)	11 (18.0)	20 (32.8)	19 (31.1)	5 (8.2)	3
10 (E)	2 (6.5)	0	4 (12.9)	12 (38.7)	13 (41.9)	4
10 (C)	1 (1.6)	9 (14.8)	13 (21.3)	22 (36.1)	16 (26.2)	4
11 (E)	5 (16.1)	10 (32.3)	6 (19.4)	6 (19.4)	4 (12.9)	3
11 (C)	7 (11.7)	18 (30.0)	19 (31.7)	12 (20.0)	4 (6.7)	3
12 (E)	1 (3.2)	13 (41.9)	9 (29.0)	8 (25.8)	0	3
12 (C)	5 (8.1)	13 (21.0)	22 (35.5)	14 (22.6)	8 (12.9)	3
13 (E)	1 (3.2)	10 (32.3)	8 (25.8)	10 (32.3)	2 (6.5)	3
13 (C)	5 (8.6)	6 (10.3)	18 (31.0)	23 (39.7)	6 (10.3)	3.5
14 (E)	4 (12.9)	7 (22.6)	11 (35.5)	8 (25.8)	1 (3.2)	3
14 (C)	3 (4.9)	10 (16.4)	20 (32.8)	21 (34.4)	7 (11.5)	3
15 (E)	4 (12.9)	6 (19.4)	9 (29.0)	9 (29.0)	3 (9.7)	3
15 (C)	5 (8.3)	16 (26.7)	16 (26.7)	15 (25.0)	8 (13.3)	3
16 (E)	3 (9.7)	9 (29.0)	11 (35.5)	5 (16.1)	3 (9.7)	3
16 (C)	10 (16.1)	14 (22.6)	18 (29.0)	12 (19.4)	8 (12.9)	3

Table :2 Using Different Learning Styles: Frequencies and Percentages  
at the Time of the Postponed-Test

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	18 (58.1)	7 (22.6)	3 (9.7)	2 (6.5)	1 (3.2)	1
1 (C)	1 (1.6)	1 (1.6)	8 (12.9)	19 (30.6)	33 (53.2)	5
2 (E)	0	3 (9.7)	11 (35.5)	15 (48.4)	2 (6.5)	4
2 (C)	7 (11.5)	14 (23.0)	18 (29.5)	15 (24.6)	7 (11.5)	3
3 (E)	2 (6.7)	6 (20.0)	9 (30.0)	8 (26.7)	5 (16.7)	3
3 (C)	9 (14.5)	11 (17.7)	18 (29.0)	19 (30.6)	5 (8.1)	3
4 (E)	5 (16.1)	4 (12.9)	6 (19.4)	6 (19.4)	10 (32.3)	4
4 (C)	22 (36.1)	13 (21.3)	12 (19.7)	12 (19.7)	2 (3.3)	2
5 (E)	1 (3.2)	3 (9.7)	5 (16.1)	16 (51.6)	6 (19.4)	4
5 (C)	16 (25.8)	10 (16.1)	16 (25.8)	15 (24.2)	5 (8.1)	3
6 (E)	3 (9.7)	7 (22.6)	10 (32.3)	8 (25.8)	3 (9.7)	3
6 (C)	13 (21.3)	16 (26.2)	19 (31.1)	9 (14.8)	4 (6.6)	3
7 (E)	2 (6.5)	5 (16.1)	5 (16.1)	15 (48.4)	4 (12.9)	4
7 (C)	16 (25.8)	19 (30.6)	11 (17.7)	13 (21.0)	3 (4.8)	2
8 (E)	13 (41.9)	6 (19.4)	4 (12.9)	6 (19.4)	2 (6.5)	2
8 (C)	34 (54.8)	9 (14.5)	4 (6.5)	5 (8.1)	10 (16.1)	1
9 (E)	0	2 (6.5)	6 (19.4)	2 (6.5)	21 (67.7)	5
9 (C)	21 (33.9)	11 (17.7)	13 (21.0)	11 (17.7)	6 (9.7)	2
10 (E)	3 (9.7)	3 (9.7)	10 (32.3)	9 (29.0)	6 (19.4)	3
10 (C)	4 (6.5)	9 (14.5)	8 (12.9)	26 (41.9)	15 (24.2)	4
11 (E)	3 (9.7)	8 (25.8)	7 (22.6)	6 (19.4)	7 (22.6)	3
11 (C)	18 (29.0)	15 (24.2)	17 (27.4)	10 (16.1)	2 (3.2)	2
12 (E)	4 (12.9)	7 (22.6)	5 (16.1)	12 (38.7)	3 (9.7)	3
12 (C)	14 (22.6)	19 (30.6)	11 (17.7)	13 (21.0)	5 (8.1)	2
13 (E)	1 (3.3)	5 (16.7)	8 (26.7)	12 (40.0)	4 (13.3)	4
13 (C)	4 (6.5)	16 (25.8)	24 (38.7)	13 (21.0)	5 (8.1)	3
14 (E)	2 (6.5)	3 (9.7)	6 (19.4)	15 (48.4)	5 (16.1)	4
14 (C)	10 (16.1)	13 (21.0)	15 (24.2)	19 (30.6)	5 (8.1)	3
15 (E)	5 (16.1)	7 (22.6)	10 (32.3)	8 (25.8)	1 (3.2)	3
15 (C)	18 (29.0)	9 (14.5)	14 (22.6)	12 (19.4)	9 (14.5)	3
16 (E)	2 (6.5)	5 (16.1)	9 (29.0)	10 (32.3)	5 (16.1)	3
16 (C)	15 (24.2)	11 (17.7)	17 (27.4)	12 (19.4)	7 (11.3)	3

**Table 3: Students' Enjoyment of Different Learning Styles:  
Frequencies and Percentages at the Time of the Postponed-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	3 (9.7)	4 (12.9)	6 (19.4)	2 (6.5)	16 (51.6)	5
1 (C)	3 (4.8)	1 (1.6)	10 (16.1)	19 (30.6)	29 (46.8)	4
2 (E)	5 (16.1)	9 (29.0)	6 (19.4)	5 (16.1)	6 (19.4)	3
2 (C)	3 (4.8)	11 (17.7)	21 (33.9)	17 (27.4)	10 (16.1)	3
3 (E)	5 (16.1)	4 (12.9)	5 (16.1)	9 (29.0)	8 (25.8)	4
3 (C)	5 (8.1)	7 (11.3)	17 (27.4)	22 (35.5)	11 (17.7)	4
4 (E)	7 (22.6)	6 (19.4)	7 (22.6)	7 (22.6)	4 (12.9)	3
4 (C)	10 (16.7)	12 (20.0)	21 (35.0)	10 (16.7)	7 (11.7)	3
5 (E)	3 (10.0)	6 (20.0)	7 (23.3)	10 (33.3)	4 (13.3)	3
5 (C)	10 (16.1)	11 (17.7)	19 (30.6)	17 (27.4)	5 (8.1)	3
6 (E)	4 (12.9)	7 (22.6)	4 (12.9)	13 (41.9)	3 (9.7)	4
6 (C)	9 (14.5)	17 (27.4)	17 (27.4)	13 (21.0)	6 (9.7)	3
7 (E)	4 (12.9)	6 (19.4)	10 (32.3)	8 (25.8)	3 (9.7)	3
7 (C)	9 (14.5)	13 (21.0)	19 (30.6)	15 (24.2)	6 (9.7)	3
8 (E)	8 (25.8)	1 (3.2)	6 (19.4)	6 (19.4)	10 (32.3)	4
8 (C)	12 (19.4)	9 (14.5)	10 (16.1)	13 (21.0)	18 (29.0)	3.5
9 (E)	9 (29.0)	6 (19.4)	4 (12.9)	6 (19.4)	6 (19.4)	3
9 (C)	12 (19.4)	13 (21.0)	18 (29.0)	13 (21.0)	6 (9.7)	3
10 (E)	6 (19.4)	2 (6.5)	3 (9.7)	10 (32.3)	10 (32.3)	4
10 (C)	3 (4.8)	12 (19.4)	16 (25.8)	18 (29.0)	13 (21.0)	3.5
11 (E)	5 (16.1)	6 (19.4)	11 (35.5)	6 (19.4)	3 (9.7)	3
11 (C)	8 (12.9)	15 (24.4)	24 (38.7)	11 (17.7)	4 (6.5)	3
12 (E)	5 (16.1)	11 (35.5)	6 (19.4)	9 (29.0)	0	2
12 (C)	9 (14.5)	7 (11.3)	25 (40.3)	12 (19.4)	9 (14.5)	3
13 (E)	3 (9.7)	7 (22.6)	13 (41.9)	6 (19.4)	2 (6.5)	3
13 (C)	4 (6.6)	16 (26.2)	18 (29.5)	16 (26.2)	7 (11.5)	3
14 (E)	7 (23.3)	6 (20.0)	7 (23.3)	9 (30.0)	1 (3.3)	3
14 (C)	6 (9.8)	12 (19.7)	19 (31.1)	15 (24.6)	9 (14.8)	3
15 (E)	4 (12.9)	7 (22.6)	10 (32.3)	7 (22.6)	3 (9.7)	3
15 (C)	10 (16.1)	9 (14.5)	19 (30.6)	19 (30.6)	5 (8.1)	3
16 (E)	8 (25.8)	6 (19.4)	5 (16.1)	6 (19.4)	6 (19.4)	3
16 (C)	12 (19.4)	11 (17.7)	20 (32.3)	11 (17.7)	8 (12.9)	4



Table 4: Students' Enjoyment of Using Different Resources:  
Frequencies and Percentages at the Time of the Postponed-Test

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	3 (9.7)	3 (9.7)	5 (16.1)	10 (32.3)	10 (32.3)	4
1 (C)	4 (6.5)	5 (8.1)	14 (22.6)	19 (30.6)	20 (32.3)	4
2 (E)	3 (9.7)	2 (6.5)	14 (45.2)	9 (29.0)	3 (9.7)	3
2 (C)	7 (11.3)	15 (24.2)	12 (19.4)	17 (27.4)	11 (17.7)	3
3 (E)	2 (6.5)	2 (6.5)	5 (16.1)	8 (25.8)	14 (45.2)	4
3 (C)	7 (11.3)	7 (11.3)	11 (17.7)	11 (17.7)	26 (41.9)	4
4 (E)	3 (9.7)	2 (6.5)	3 (9.7)	9 (29.0)	14 (45.2)	4
4 (C)	6 (9.7)	5 (8.1)	15 (24.2)	14 (22.6)	22 (35.5)	4
5 (E)	3 (9.7)	3 (9.7)	7 (22.6)	12 (38.7)	6 (19.4)	4
5 (C)	10 (16.1)	9 (14.5)	24 (38.7)	12 (19.4)	7 (11.3)	3
6 (E)	3 (9.7)	5 (16.1)	5 (16.1)	12 (38.7)	6 (19.4)	4
6 (C)	1 (1.6)	10 (16.1)	17 (27.4)	18 (29.0)	16 (25.8)	4
7 (E)	4 (12.9)	3 (9.7)	6 (19.4)	6 (19.4)	12 (38.7)	4
7 (C)	2 (3.3)	9 (14.8)	16 (26.2)	17 (27.9)	17 (29.9)	4
8 (E)	5 (16.1)	5 (16.1)	7 (22.6)	9 (29.0)	5 (16.1)	3
8 (C)	11 (17.7)	11 (17.7)	17 (27.4)	12 (19.4)	11 (17.7)	3

**Table 5: Students' Description Their History Teacher: Frequencies and Percentages at the Time of the Postponed-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	3 (9.7)	3 (9.7)	4 (12.9)	4 (12.9)	17 (54.8)	5
1 (C)	2 (3.2)	0	7 (11.3)	11 (17.7)	42 (67.7)	5
2 (E)	2 (6.5)	1 (3.2)	6 (19.4)	6 (19.4)	16 (51.6)	5
2 (C)	3 (4.8)	4 (6.5)	6 (9.7)	14 (22.6)	35 (56.5)	5
3 (E)	0	3 (9.7)	7 (22.6)	2 (6.5)	19 (61.3)	5
3 (C)	1 (1.6)	1 (1.6)	7 (11.5)	13 (21.3)	39 (63.9)	5
4 (E)	4 (12.9)	9 (29.0)	5 (16.1)	4 (12.9)	9 (29.0)	3
4 (C)	3 (4.9)	3 (4.9)	13 (21.3)	14 (23.0)	28 (45.9)	4
5 (E)	4 (12.9)	3 (9.7)	6 (19.4)	8 (25.8)	10 (32.3)	4
5 (C)	3 (4.8)	1 (1.6)	10 (16.1)	19 (30.6)	29 (46.8)	4
6 (E)	4 (12.9)	6 (19.4)	5 (16.1)	6 (19.4)	10 (32.3)	4
6 (C)	2 (3.2)	8 (12.9)	7 (11.3)	13 (21.0)	32 (51.6)	5
7 (E)	4 (12.9)	1 (3.2)	7 (22.6)	9 (29.0)	10 (32.3)	4
7 (C)	1 (1.6)	0	9 (14.8)	14 (23.0)	37 (60.7)	5
8 (E)	4 (13.3)	0	4 (13.3)	8 (26.7)	14 (46.7)	4
8 (C)	4 (6.5)	2 (3.2)	8 (12.9)	16 (25.8)	32 (51.6)	5
9 (E)	7 (22.6)	0	12 (38.7)	5 (16.1)	7 (22.6)	3
9 (C)	4 (6.5)	3 (4.8)	15 (24.2)	19 (30.6)	21 (33.9)	4

**Table 6: Students' Enjoyment of History Content: Frequencies and Percentages at the Time of the Postponed-Test**

Group	Hardly at all	A little	Reasonably	A lot	Very much	Median
(E)	2 (6.5)	3 (9.7)	9 (29.0)	11 (35.5)	6 (19.4)	4
(C)	2 (3.3)	0	13 (21.7)	24 (40.0)	21 (35.0)	4

Table 7: Using Different Resources: Frequencies and Percentages at the Time of the Postponed-Test

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	0	1 (3.2)	4 (12.9)	11 (35.5)	15 (48.4)	4
1 (C)	5 (8.1)	3 (4.8)	13 (21.0)	13 (21.0)	28 (45.2)	4
2 (E)	6 (19.4)	3 (9.7)	4 (12.9)	10 (32.3)	8 (25.8)	4
2 (C)	18 (29.0)	10 (16.1)	18 (29.0)	12 (19.4)	4 (6.5)	3
3 (E)	10 (32.3)	6 (19.4)	3 (9.7)	7 (22.6)	5 (16.1)	2
3 (C)	21 (33.9)	10 (16.1)	13 (21.0)	5 (8.1)	13 (21.0)	2.5
4 (E)	11 (35.5)	6 (19.4)	3 (9.7)	7 (22.6)	4 (12.9)	2
4 (C)	21 (33.9)	12 (19.4)	7 (11.3)	12 (19.4)	10 (16.1)	2
5 (E)	12 (38.7)	6 (19.4)	4 (12.9)	5 (16.1)	4 (12.9)	2
5 (C)	26 (41.9)	10 (16.1)	22 (17.7)	5 (8.1)	10 (16.1)	2
6 (E)	1 (3.2)	5 (16.1)	9 (29.0)	9 (29.0)	7 (22.6)	4
6 (C)	13 (21.3)	11 (18.0)	12 (19.7)	14 (23.0)	11 (18.0)	3
7 (E)	3 (9.7)	4 (12.9)	6 (19.4)	10 (32.3)	8 (25.8)	4
7 (C)	7 (11.3)	9 (14.5)	7 (11.3)	24 (38.7)	15 (24.2)	4
8 (E)	1 (3.2)	3 (9.7)	6 (19.4)	8 (25.8)	13 (41.9)	4
8 (C)	19 (30.6)	10 (16.1)	13 (21.0)	9 (14.5)	11 (17.7)	3

Table 8: Importance of History, Geography and Science at the Time of the Postponed-test: Frequencies and Percentages

Item	1	2	3	4	5	Median
His (E)	1 (3.2)	2 (6.5)	5 (16.1)	12 (38.7)	11 (35.5)	4
His (C)	1 (1.6)	1 (1.6)	11 (17.7)	21 (33.9)	28 (45.2)	4
Geo (E)	1 (3.2)	1 (3.2)	7 (22.6)	12 (38.7)	10 (32.3)	4
Geo (C)	1 (1.6)	5 (8.1)	13 (21.0)	27 (43.5)	16 (25.8)	4
Sci (E)	1 (3.2)	3 (9.7)	4 (12.9)	8 (25.8)	15 (48.4)	4
Sci (C)	2 (3.2)	2 (3.2)	11 (17.7)	22 (35.5)	25 (40.3)	4



**Table 9: The Reasons that Make History Important: Frequencies and Percentages at the Time of the Postponed-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	3 (9.7)	6 (19.4)	9 (29.0)	8 (25.8)	5 (16.1)	3
1 (C)	4 (6.5)	9 (14.5)	22 (35.5)	12 (19.4)	15 (24.2)	3
2 (E)	1 (3.2)	2 (6.5)	8 (25.8)	12 (38.7)	8 (25.8)	4
2 (C)	2 (3.2)	6 (9.7)	14 (22.6)	29 (46.8)	11 (17.7)	4
3 (E)	1 (3.2)	2 (6.5)	7 (22.6)	12 (38.7)	9 (29.0)	4
3 (C)	5 (8.1)	7 (11.3)	17 (27.4)	20 (32.3)	13 (21.0)	4
4 (E)	1 (3.2)	7 (22.6)	6 (19.4)	9 (29.0)	8 (25.8)	4
4 (C)	0	5 (8.1)	18 (29.0)	23 (37.1)	16 (25.8)	4
5 (E)	4 (12.9)	3 (9.7)	8 (25.8)	8 (25.8)	8 (25.8)	4
5 (C)	0	10 (16.1)	7 (11.3)	26 (41.9)	19 (30.6)	4
6 (E)	2 (6.5)	1 (3.2)	3 (9.7)	11 (35.5)	14 (45.2)	4
6 (C)	2 (3.2)	2 (3.2)	12 (19.4)	20 (32.3)	26 (41.9)	4
7 (E)	4 (12.9)	1 (3.2)	4 (12.9)	14 (45.2)	8 (25.8)	4
7 (C)	5 (8.1)	9 (14.5)	15 (24.2)	10 (16.1)	23 (37.1)	4
8 (E)	5 (16.1)	5 (16.1)	11 (35.5)	6 (19.4)	4 (12.9)	3
8 (C)	11 (17.7)	13 (21.0)	13 (21.0)	17 (27.4)	8 (12.9)	3

**Table 10: Trying Different Learning Styles: Frequencies and Percentages at the Time of the Postponed-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
1 (E)	10 (32.3)	4 (12.9)	10 (32.3)	1 (3.2)	6 (19.4)	3
1 (C)	7 (11.3)	10 (16.1)	23 (37.1)	13 (21.0)	9 (14.5)	3
2 (E)	9 (29.0)	7 (22.6)	8 (25.8)	5 (16.1)	2 (6.5)	2
2 (C)	9 (14.5)	11 (17.7)	25 (40.3)	12 (19.4)	5 (8.1)	3
3 (E)	9 (29.0)	6 (19.4)	4 (12.9)	8 (25.8)	4 (12.9)	3
3 (C)	6 (9.7)	12 (19.4)	23 (37.1)	15 (24.2)	6 (9.7)	3
4 (E)	9 (29.0)	6 (19.4)	4 (12.9)	4 (12.9)	8 (25.8)	3
4 (C)	6 (9.7)	7 (11.3)	19 (30.6)	22 (35.5)	8 (12.9)	3
5 (E)	9 (29.0)	4 (12.9)	9 (29.0)	5 (16.1)	4 (12.9)	3
5 (C)	6 (9.7)	13 (21.0)	16 (25.8)	17 (27.4)	10 (16.1)	3
6 (E)	4 (12.9)	2 (6.5)	6 (19.4)	6 (19.4)	13 (41.9)	4
6 (C)	0	4 (6.5)	7 (11.3)	26 (41.9)	25 (40.3)	4

**Table 11: Students' Enjoyment of History, Geography and Science at the Time of the Postponed-test : Frequencies and Percentages**

Item	1	2	3	4	5	Median
His (E)	0	2 (6.5)	8 (25.8)	14 (45.2)	7 (22.6)	4
His (C)	1 (1.6)	2 (3.2)	8 (12.9)	28 (45.2)	23 (37.1)	4
Geo (E)	1 (3.2)	1 (3.2)	7 (22.6)	17 (54.8)	5 (16.1)	4
Geo (C)	1 (1.6)	7 (11.3)	10 (16.1)	32 (51.6)	12 (19.4)	4
Sci (E)	1 (3.2)	4 (12.9)	10 (32.3)	7 (22.6)	9 (29.0)	4
Sci (C)	4 (6.5)	8 (12.9)	16 (25.8)	23 (37.1)	11 (17.7)	4

**Table : The Easiness of History, Geography and Science at the Time of the Postponed-test: Frequencies and Percentages**

Item	1	2	3	4	5	Median
His (E)	5 (16.1)	11 (35.5)	8 (25.8)	6 (19.4)	1 (3.2)	2
His (C)	9 (14.5)	20 (32.3)	26 (41.9)	2 (3.2)	5 (8.1)	3
Geo (E)	2 (6.5)	9 (29.0)	16 (51.6)	3 (9.7)	1 (3.2)	3
Geo (C)	6 (9.7)	16 (25.8)	32 (51.6)	7 (11.3)	1 (1.6)	3
Sci (E)	1 (3.2)	2 (6.5)	14 (45.2)	11 (35.5)	3 (9.7)	3
Sci (C)	3 (4.8)	9 (14.5)	21 (33.9)	20 (32.3)	9 (14.5)	3

**Table : The Easiness of Memorization of History, Geography and Science at the Time of thePostponed-test: Frequencies and Percentages**

Item	1	2	3	4	5	Median
His (E)	6 (19.4)	12 (38.7)	6 (19.4)	6 (19.4)	1 (3.2)	2
His (C)	7 (11.3)	20 (32.3)	24 (38.7)	4 (6.5)	7 (11.3)	3
Geo (E)	4 (12.9)	10 (32.3)	14 (45.2)	3 (9.7)	0	3
Geo (C)	5 (8.1)	15 (24.2)	30 (48.4)	9 (14.5)	3 (4.8)	3
Sci (E)	3 (9.7)	0	13 (41.9)	13 (41.9)	2 (6.5)	3
Sci (C)	1 (1.6)	7 (11.3)	25 (40.3)	17 (27.4)	12 (19.4)	3

**Table 12: Students' Intention to Take History, Geography and Science at Higher Education for the Two Groups at the Time of the Postponed-test**

Items	Group	Yes	No	Total	Missing
History	Experiment	15 (48.4)	16 (51.6)	31	0
	Control	34 (54.8)	28 (45.2)	62	0
Geography	Experiment	10 (32.3)	21 (67.7)	31	0
	Control	22 (35.5)	40 (64.5)	62	0
Science	Experiment	14 (45.2)	17 (54.8)	31	0
	Control	30 (48.4)	32 (51.6)	62	0

**Table 13: Students' Perception to Their Teacher's Knowledge:  
Frequencies and Percentages at the Time of the Postponed-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
(E)	0	1 (3.2)	6 (19.4)	11 (35.5)	13 (41.9)	4
(C)	0	0	6 (9.7)	32 (51.6)	24 (38.7)	4

**Table 14: Students' Liking Thier Teacher : Frequencies and Percentages at the  
Time of the Postponed-Test**

Item	Hardly at all	A little	Reasonably	A lot	Very much	Median
(E)	0	3 (9.7)	2 (6.5)	10 (32.3)	16 (51.6)	5
(C)	0	0	6 (9.7)	25 (40.3)	31 (50.0)	4.5



**Appendix (13) Frequencies and Percentages of Students' Scores of the Experimental and Control Groups in the Modified Watson-Glazer Critical Thinking Appraisal for Each Exercise and for the Total Score**

**Table 1: Exercise1: Frequencies and Percentages**

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed		
0				1 (1.6)				
1				4 (6.5)	2 (3.2)	1 (1.6)		
2	4 (12.9)	4 (12.9)		9 (14.5)	6 (9.7)	3 (4.8)		
3	7 (22.6)	2 (6.5)	3 (9.7)	12 (19.4)	9 (14.5)	7 (11.3)		
4	6 (19.4)	11 (35.5)	9 (29.0)	14 (22.6)	13 (21.0)	18 (29.0)		
5	7 (22.6)	6 (19.4)	6 (19.4)	11 (17.7)	7 (11.3)	18 (29.0)		
6	4 (12.9)	4 (12.9)	6 (19.4)	7 (11.3)	11 (17.7)	7 (11.3)		
7	2 (6.5)	1 (3.2)	2 (6.5)	3 (4.8)	8 (12.9)	3 (4.8)		
8	1 (3.2)	2 (6.5)	1 (3.2)	1 (1.6)	4 (6.5)	4 (6.5)		
9		1 (3.2)	1 (3.2)		1 (1.6)	1 (1.6)		
10					1 (1.6)			
Mean	4.323	4.645	4.774	3.871	4.855	4.742		
SD	1.600	1.762	1.687	1.722	2.039	1.599		

Table 2: Exercise 2: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages postponed		Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages postponed	
2	1 (3.2)							
3						1 (1.6)		
4	2 (6.5)	3 (9.7)			3 (4.8)			
5		1 (3.2)			9 (14.5)	2 (3.2)	2 (3.2)	
6	8 (25.8)	3 (9.7)	1 (3.2)		4 (6.5)	4 (6.5)	12 (19.4)	
7	4 (12.9)	7 (22.6)	11 (35.5)		9 (14.5)	10 (16.1)	11 (17.7)	
8	6 (19.4)	4 (12.9)	10 (32.3)		14 (22.6)	11 (17.7)	13 (21.0)	
9	3 (9.7)	3 (9.7)	6 (19.4)		9 (14.5)	7 (11.3)	12 (19.4)	
10	5 (16.1)	5 (16.1)	1 (3.2)		7 (11.3)	15 (24.2)	5 (8.1)	
11	1 (3.2)	1 (3.2)	2 (6.5)		7 (11.3)	11 (17.7)	5 (8.1)	
12	1 (3.2)	4 (12.9)				1 (1.6)	2 (3.2)	
Mean	7.548	8.129	8.032		7.806	8.726	8.065	
SD	2.204	2.391	1.197		2.031	1.892	1.745	

Table 3: Exercise 3: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages of students postponed		Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages of students postponed	
4	1 (3.2)	2 (6.5)			1 (1.6)	1 (1.6)		
5	1 (3.2)	1 (3.2)			6 (9.7)	7 (11.3)	2 (3.2)	
6	5 (16.1)	3 (9.7)			7 (11.3)	6 (9.7)	10 (16.1)	
7	10 (32.3)	1 (3.2)			16 (25.8)	10 (16.1)	13 (21.0)	
8	4 (12.9)	9 (29.0)			17 (27.4)	13 (21.0)	9 (14.5)	
9	5 (16.1)	5 (16.1)			6 (9.7)	8 (12.9)	15 (24.2)	
10	3 (9.7)	3 (9.7)			5 (8.1)	10 (16.1)	4 (6.5)	
11	2 (6.5)	2 (6.5)			2 (3.2)	5 (8.1)	3 (4.8)	
12		3 (9.7)			2 (3.2)	2 (3.2)	4 (6.5)	
13		1 (3.2)					1 (1.6)	
14		1 (3.2)					1 (1.6)	
Mean	7.677	8.710	8.258		7.645	8.065	8.323	
Standard	1.701	2.466	2.097		1.728	1.974	2.014	



Table 4: Exercise 4: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages of students postponed	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages of students postponed		
3		1 (3.2)						
4	1 (3.2)	1 (3.2)		1 (1.6)	2 (3.2)	1 (1.6)		
5	2 (6.5)	3 (9.7)	1 (3.2)	5 (8.1)		4 (6.5)		
6	3 (9.7)	5 (16.1)	4 (12.9)	10 (16.1)	4 (6.5)	8 (12.9)		
7	4 (12.9)	7 (22.6)	4 (12.9)	16 (25.8)	8 (12.9)	14 (22.6)		
8	5 (16.1)	5 (16.1)	11 (35.5)	12 (19.4)	13 (21.0)	7 (11.3)		
9	7 (22.6)	3 (9.7)	4 (12.9)	8 (12.9)	11 (17.7)	11 (17.7)		
10	6 (19.4)	3 (9.7)	2 (6.5)	5 (8.1)	11 (17.7)	6 (9.7)		
11	2 (6.5)	3 (9.7)	4 (12.9)	3 (4.8)	8 (12.9)	7 (11.3)		
12	1 (3.2)		1 (3.2)	2 (3.2)	2 (3.2)	3 (4.8)		
13					3 (4.8)	1 (1.6)		
Mean	8.290	7.452	8.290	7.677	8.903	8.242		
SD	1.936	1.063	1.736	1.800	1.981	2.086		

Table 5: Exercise 5: Frequencies and Percentages

EXPERIMENTAL GROUP				CONTROL GROUP			
Scores	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	
3			1 (3.2)				
4		1 (3.2)					
5		1 (3.2)	2 (6.5)		2 (3.2)		
6	1 (3.2)	3 (9.7)		5 (8.1)	2 (3.2)	4 (6.5)	
7	7 (22.6)	4 (12.9)	2 (6.5)	12 (19.4)	7 (11.3)	3 (4.8)	
8	5 (16.1)	3 (9.7)	2 (6.5)	6 (9.7)	8 (12.9)	6 (9.7)	
9	7 (22.6)	1 (3.2)	5 (16.1)	11 (17.7)	13 (21.0)	6 (9.7)	
10	7 (22.6)	7 (22.6)	7 (22.6)	11 (17.7)	14 (22.6)	11 (17.7)	
11	1 (3.2)	5 (16.1)	3 (9.7)	10 (16.1)	5 (8.1)	12 (19.4)	
12	3 (9.7)	1 (3.2)	3 (9.7)	4 (6.5)	6 (9.7)	9 (14.5)	
13			5 (16.1)	1 (1.6)	4 (6.5)	9 (14.5)	
14				1 (1.6)	1 (1.6)	2 (3.2)	
15				1 (1.6)			
16			1 (3.2)				
Mean	9.065	9.484	9.935	9.210	9.435	10.355	
SD	2.065	2.779	2.744	2.066	2.029	2.120	

Table 6: Total Score: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed		Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	
28	2 (6.5)				1 (1.6)			
29		2 (6.5)			1 (1.6)			
30	3 (9.7)				1 (1.6)	1 (1.6)		
31		2 (6.5)			4 (6.5)	1 (1.6)	1 (1.6)	
32		1 (3.2)			2 (3.2)		1 (1.6)	
33	3 (9.7)		2 (6.5)		2 (3.2)	3 (4.8)	2 (3.2)	
34	1 (3.2)	2 (6.5)	6 (19.4)		10 (16.1)	1 (1.6)	3 (4.8)	
35	3 (9.7)	4 (12.9)			4 (6.5)	3 (4.8)	5 (8.1)	
36	4 (12.9)	2 (6.5)	1 (3.2)		11 (17.7)	3 (4.8)	3 (4.8)	
37	2 (6.5)	3 (9.7)	3 (9.7)		6 (9.7)	8 (12.9)	5 (8.1)	
38	3 (9.7)		2 (6.5)		6 (9.7)	2 (3.2)	4 (6.5)	
39	3 (9.7)	3 (9.7)	2 (6.5)		4 (6.5)	7 (11.3)	4 (6.5)	
40	1 (3.2)	3 (9.7)	3 (9.7)		2 (3.2)	9 (14.5)	6 (9.7)	
41		1 (3.2)	2 (6.5)		1 (1.6)	4 (6.5)	6 (9.7)	
42		1 (3.2)	2 (6.5)		4 (6.5)	5 (8.1)	9 (14.5)	
43	2 (6.5)	1 (3.2)	3 (9.7)		1 (1.6)	2 (3.2)	5 (8.1)	
44	1 (3.2)	2 (6.5)	2 (6.5)		1 (1.6)	3 (4.8)	2 (3.2)	
45						3 (4.8)	1 (1.6)	
46	1 (3.2)				1 (1.6)	1 (1.6)	1 (1.6)	
47	1 (3.2)	2 (6.5)	2 (6.5)			1 (1.6)	2 (3.2)	
48						2 (3.2)	1 (1.6)	
49	1 (3.2)					1 (1.6)		
50			1 (3.2)			1 (1.6)		
51		1 (3.2)						



52			1 (3.2)				1 (1.6)		
56								1 (1.6)	
Mean	36.935		38.419	39.290		36.210	39.984	39.726	
SD	5.329		5.870	4.540		3.667	4.575	4.403	

**Appendix (14) Frequencies and Percentages of Students' Scores of the Experimental and Control Groups in the Achievement Test for Each Question and for the Total Score**

**Table 1: Question 1: Frequencies and Percentages**

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages postponed		Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages postponed	
3					1 (1.6)			
4					2 (3.2)	1 (1.6)	1 (1.6)	
5	1 (3.2)				4 (6.5)	1 (1.6)	1 (1.6)	
6	2 (6.5)		1 (3.2)		7 (11.3)		1 (1.6)	
7	6 (19.4)	3 (9.7)	1 (3.2)		7 (11.3)	4 (6.5)	2 (3.2)	
8	8 (25.8)	4 (12.9)	2 (6.5)		11 (17.7)	4 (6.5)	1 (1.6)	
9	6 (19.4)	1 (3.2)	5 (16.1)		14 (22.6)	14 (22.6)	7 (11.3)	
10	3 (9.7)	2 (6.5)	5 (16.1)		6 (9.7)	9 (14.5)	13 (21.0)	
11	2 (6.5)	9 (29.0)	8 (25.8)		8 (12.9)	8 (12.9)	8 (12.9)	
12		3 (9.7)	3 (9.7)		2 (3.2)	10 (16.1)	7 (11.3)	
13	3 (9.7)	1 (3.2)	3 (9.7)			8 (12.9)	12 (19.4)	
14		5 (16.1)	1 (3.2)			1 (1.6)	7 (11.3)	
15		3 (9.7)	2 (6.5)			2 (3.2)	2 (3.2)	
Mean	8.645	11.129	10.677		8.194	10.339	11.065	
SD	2.009	2.513	2.135		2.095	2.239	2.367	

Table 2: Question 2: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages postponed		Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages postponed	
3					1 (1.6)			
4					6 (9.7)			
5	1 (3.2)				3 (4.8)	3 (4.8)	1 (1.6)	
6	2 (6.5)	1 (3.2)			6 (9.7)	2 (3.2)	4 (6.5)	
7	8 (25.8)	1 (3.2)	4 (12.9)		11 (17.7)	4 (6.5)	3 (4.8)	
8	3 (9.7)	1 (3.2)	4 (12.9)		12 (19.4)	6 (9.7)	7 (11.3)	
9	13 (41.9)	11 (35.5)	6 (19.4)		14 (22.6)	16 (25.8)	10 (16.1)	
10		4 (12.9)	3 (9.7)		4 (6.5)	8 (12.9)	17 (27.4)	
11	4 (12.9)	13 (41.9)	14 (45.2)		5 (8.1)	23 (37.1)	20 (32.3)	
Mean	8.323	9.774	9.613		7.613	9.355	9.452	
SD	1.536	1.309	1.498		2.019	1.719	1.596	



Table 3: Question 3: Frequencies and Percentages

EXPERIMENTAL GROUP				CONTROL GROUP			
Scores	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	
0	1 (3.2)				1 (1.6)	1 (1.6)	
1				1 (1.6)			
2	1 (3.2)			1 (1.6)	1 (1.6)		
3	1 (3.2)		1 (3.2)	1 (1.6)	1 (1.6)	1 (1.6)	
4		3 (9.7)	1 (3.2)	3 (4.8)		1 (1.6)	
5	2 (6.5)		1 (3.2)	6 (9.7)	2 (3.2)	3 (4.8)	
6	2 (6.5)	5 (16.1)	2 (6.5)	6 (9.7)	6 (9.7)	3 (4.8)	
7	3 (9.7)	3 (9.7)	5 (16.1)	14 (22.6)	12 (19.4)	13 (21.0)	
8	7 (22.6)	5 (16.1)	9 (29.0)	13 (21.0)	8 (12.9)	18 (29.0)	
9	8 (25.8)	7 (22.6)	7 (22.6)	11 (17.7)	15 (24.2)	14 (22.6)	
10	6 (19.4)	8 (25.8)	5 (16.1)	6 (9.7)	16 (25.8)	8 (12.9)	
Mean	7.613	7.935	7.871	7.177	7.968	7.758	
SD	2.459	1.914	1.727	1.996	2.056	1.808	

Table 4: Question 4: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed		Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	
0	1 (3.2)				9 (14.5)		1 (1.6)	
1	3 (9.7)				2 (3.2)			
2	1 (3.2)				7 (11.3)		1 (1.6)	
3	2 (6.5)				11 (17.7)	1 (1.6)	1 (1.6)	
4	8 (25.8)		1 (3.2)		14 (22.6)	2 (3.2)	1 (1.6)	
5	11 (35.5)	2 (6.5)	2 (6.5)		9 (14.5)	5 (8.1)	9 (14.5)	
6	3 (9.7)	1 (3.2)			4 (6.5)	8 (12.9)	3 (4.8)	
7	1 (3.2)	1 (3.2)	3 (9.7)		3 (4.8)	5 (8.1)	5 (8.1)	
8		2 (6.5)	5 (16.1)		1 (1.6)	9 (14.5)	10 (16.1)	
9	1 (3.2)	8 (25.8)	3 (9.7)		2 (3.2)	8 (12.9)	8 (12.9)	
10		7 (22.6)	9 (29.0)			3 (4.8)	8 (12.9)	
11		6 (19.4)	5 (16.1)			14 (22.6)	6 (9.7)	
12		2 (6.5)	1 (3.2)			5 (8.1)	6 (9.7)	
13		1 (3.2)	2 (6.5)			2 (3.2)	3 (4.8)	
14		1 (3.2)						
Mean	4.258	9.613	9.194		3.565	8.597	8.323	
SD	1.861	2.044	2.182		2.244	2.538	2.856	

Table 5: Question 5: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed		Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	
0	1 (3.2)				3 (4.8)			
1	1 (3.2)				4 (6.5)			
2	2 (6.5)		1 (3.2)		4 (6.5)			
3	1 (3.2)				7 (11.3)		3 (4.8)	
4	5 (16.1)				7 (11.3)	2 (3.2)	4 (6.5)	
5	4 (12.9)	1 (3.2)			9 (14.5)	3 (4.8)	6 (9.7)	
6	3 (9.7)	2 (6.5)	2 (6.5)		8 (12.9)	6 (9.7)	5 (8.1)	
7	1 (3.2)	4 (12.9)	3 (9.7)		7 (11.3)	3 (4.8)	11 (17.7)	
8	2 (6.5)	7 (22.6)	7 (22.6)		4 (6.5)	14 (22.6)	12 (19.4)	
9	9 (29.0)	5 (16.1)	9 (29.0)		3 (4.8)	14 (22.6)	12 (19.4)	
10	2 (6.5)	4 (12.9)	5 (16.1)		5 (8.1)	12 (19.4)	8 (12.9)	
11		5 (16.1)	4 (12.9)		1 (1.6)	6 (9.7)	1 (1.6)	
12		3 (9.7)				2 (3.2)		
Mean	6.129	8.935	8.581		5.210	8.516	7.371	
SD	2.872	1.896	1.840		2.829	1.888	2.034	



Table 6: Question 6: Frequencies and Percentages

EXPERIMENTAL GROUP				CONTROL GROUP		
Scores	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed
0	29 (93.5)	3 (9.7)	1 (3.2)	52 (83.9)	10 (16.1)	3 (4.8)
1		1 (3.2)	2 (6.5)	2 (3.2)	2 (3.2)	2 (3.2)
2		1 (3.2)	2 (6.5)	4 (6.5)	7 (11.3)	7 (11.3)
3		1 (3.2)		4 (6.5)	4 (6.5)	6 (9.7)
4		2 (6.5)	3 (9.7)		9 (14.5)	7 (11.3)
5	1 (3.2)	6 (19.4)	5 (16.1)		6 (9.7)	9 (14.5)
6	1 (3.2)	4 (12.9)	4 (12.9)		9 (14.5)	13 (21.0)
7		3 (9.7)	7 (22.6)		7 (11.3)	9 (14.5)
8		5 (16.1)	3 (9.7)		2 (3.2)	3 (4.8)
9		3 (9.7)	2 (6.5)		5 (8.1)	3 (4.8)
10		2 (6.5)	2 (6.5)		1 (1.6)	
Mean	.355	5.677	5.742	.355	4.323	4.823
SD	1.380	2.891	2.594	.870	2.867	2.301

Table 7: Question 7: Frequencies and Percentages

EXPERIMENTAL GROUP				CONTROL GROUP		
Scores	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed
0	3 (9.7)			1 (1.6)		
1						
2	1 (3.2)			5 (8.1)		1 (1.6)
3	1 (3.2)		1 (3.2)	5 (8.1)	1 (1.6)	
4	2 (6.5)	1 (3.2)		9 (14.5)	3 (4.8)	1 (1.6)
5	2 (6.5)		1 (3.2)	11 (17.7)	1 (1.6)	4 (6.5)
6	11 (35.5)	3 (9.7)	3 (9.7)	8 (12.9)		8 (12.9)
7	2 (6.5)	2 (6.5)	4 (12.9)	7 (11.3)	10 (16.1)	7 (11.3)
8	2 (6.5)	8 (25.8)	3 (9.7)	5 (8.1)	12 (19.4)	14 (22.6)
9	5 (16.1)	4 (12.9)	6 (19.4)	7 (11.3)	11 (17.7)	10 (16.1)
10	2 (6.5)	4 (12.9)	7 (22.6)	2 (3.2)	9 (14.5)	12 (19.4)
11		5 (16.1)	6 (19.4)	2 (3.2)	10 (16.1)	5 (8.1)
12		4 (12.9)			5 (8.1)	
Mean	5.935	9.000	8.645	5.774	8.790	8.065
SD	2.768	2.066	2.042	2.485	2.105	1.941

Table 8: Question 8: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages of students pre-test	Frequencies and percentages of students post-test	Frequencies and percentages of students postponed	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages of students postponed		
0	3 (9.7)			5 (8.1)	3 (4.8)	3 (4.8)		
1	1 (3.2)			5 (8.1)	1 (1.6)	1 (1.6)		
2	15 (48.4)	3 (9.7)	1 (3.2)	18 (29.0)	5 (8.1)	4 (6.5)		
3	5 (16.1)	9 (29.0)	6 (19.4)	17 (27.4)	10 (16.1)	13 (21.0)		
4	2 (6.5)	5 (16.1)	4 (12.9)	7 (11.3)	13 (21.0)	13 (21.0)		
5	4 (12.9)	6 (19.4)	5 (16.1)	6 (9.7)	5 (8.1)	6 (9.7)		
6	1 (3.2)	8 (25.8)	15 (48.4)	4 (6.5)	24 (38.7)	22 (35.5)		
Mean	2.581	4.226	4.871	2.806	4.371	4.226		
SD	1.501	1.383	1.310	1.556	1.831	1.703		



Table 9: Question 9: Frequencies and Percentages

EXPERIMENTAL GROUP					CONTROL GROUP				
Scores	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages postponed	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages postponed			
0	9 (29.0)			2 (6.5)			29 (46.8)	6 (9.7)	7 (11.3)
1	6 (19.4)			1 (3.2)			12 (19.4)	5 (8.1)	2 (3.2)
2	6 (19.4)	3 (9.7)					6 (9.7)	3 (4.8)	5 (8.1)
3	3 (9.7)	1 (3.2)		4 (12.9)			6 (9.7)	7 (11.3)	8 (12.9)
4	3 (9.7)	3 (9.7)		4 (12.9)			4 (6.5)	5 (8.1)	8 (12.9)
5		4 (12.9)		2 (6.5)			1 (1.6)	10 (16.1)	9 (14.5)
6	1 (3.2)	8 (25.8)		6 (19.4)			3 (4.8)	12 (19.4)	11 (17.7)
7	3 (9.7)	2 (6.5)		6 (19.4)			1 (1.6)	5 (8.1)	5 (8.1)
8		5 (16.1)		5 (16.1)				5 (8.1)	3 (4.8)
9		3 (9.7)						1 (1.6)	3 (4.8)
10		1 (3.2)						1 (1.6)	1 (1.6)
11		1 (3.2)		1 (3.2)				2 (3.2)	
Mean	2.129	6.161		5.419			1.419	4.677	4.435
SD	2.217	2.325		2.527			1.860	2.786	2.571

Table 10: Total: Frequencies and Percentages

Scores	EXPERIMENTAL GROUP				CONTROL GROUP			
	Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages of students postponed		Frequencies and percentages pre-test	Frequencies and percentages post-test	Frequencies and percentages of students postponed	
25					3 (4.8)			
26	1 (3.2)							
27	1 (3.2)							
28					1 (1.6)			
29	1 (3.2)				3 (4.8)			
30	1 (3.2)							
31					1 (1.6)			
33					1 (1.6)			
34					3 (4.8)			
35					3 (4.8)			
36					3 (4.8)			
37					4 (6.5)		1 (1.6)	
38					1 (1.6)			
39	2 (6.5)							
40	1 (3.2)				3 (4.8)	1 (1.6)		
41	2 (6.5)				2 (3.2)		1 (1.6)	
42	1 (3.2)				3 (4.8)			
43	2 (6.5)				2 (3.2)			
44	1 (3.2)				5 (8.1)	1 (1.6)	2 (3.2)	
45	1 (3.2)				5 (8.1)			
46	2 (6.5)				1 (1.6)	1 (1.6)	2 (3.2)	
47					1 (1.6)			
48					3 (4.8)	1 (1.6)		
49	4 (12.9)		1 (3.2)		3 (4.8)		1 (1.6)	
50	2 (6.5)				2 (3.2)	2 (3.2)	2 (3.2)	

51	1 (3.2)					1 (1.6)		
52	2 (6.5)					1 (1.6)		
53	1 (3.2)	1 (3.2)				1 (1.6)	2 (3.2)	
54				1 (3.2)		1 (1.6)		2 (3.2)
55	1 (3.2)					1 (1.6)		1 (1.6)
56		1 (3.2)				1 (1.6)		
57		1 (3.2)		1 (3.2)				
58		1 (3.2)					1 (1.6)	1 (1.6)
59				1 (3.2)			1 (1.6)	
60	3 (9.7)	1 (3.2)				1 (1.6)		
61		1 (3.2)		1 (3.2)			1 (1.6)	
62		2 (6.5)		2 (6.5)			2 (3.2)	
63				1 (3.2)		1 (1.6)	6 (9.7)	5 (8.1)
64				1 (3.2)			2 (3.2)	
65	1 (3.2)	2 (6.5)		1 (3.2)				
66							2 (3.2)	
67				1 (3.2)		1 (1.6)	3 (4.8)	3 (4.8)
68							5 (8.1)	2 (3.2)
69				1 (3.2)			3 (4.8)	2 (3.2)
70		2 (6.5)		3 (9.7)			3 (4.8)	4 (6.5)
71		2 (6.5)		2 (6.5)			2 (3.2)	4 (6.5)
72							4 (6.5)	2 (3.2)
73		2 (6.5)					2 (3.2)	2 (3.2)
74		1 (3.2)		1 (3.2)			1 (1.6)	2 (3.2)
75		1 (3.2)		5 (16.1)			3 (4.8)	3 (4.8)
76		1 (3.2)		1 (3.2)			1 (1.6)	1 (1.6)
77							1 (1.6)	1 (1.6)
78		2 (6.5)					3 (4.8)	2 (3.2)
79		1 (3.2)		2 (6.5)				
80		4 (12.9)					2 (3.2)	1 (1.6)



81												
82										1 (1.6)		
83											1 (1.6)	
84												
85												
86										2 (3.2)		
87												
88											1 (1.6)	
89												
90												
91											1 (1.6)	
98										1 (1.6)		
Mean	45.968		72.452		70.742		42.081		67.177		65.403	
SD	9.614		10.478		9.712		9.090		10.624		11.079	

## Appendix (15) Frequencies and Percentages of the Experimental and control groups at the Pre-test (Geography)

Table 1: Using different learning styles at the pre-test: Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	1 (3.2)	3 (9.7)	12 (38.7)	15 (48.4)	4	
1 (C)	0 (0)	1 (1.6)	5 (8.1)	28 (45.2)	28 (45.2)	4	
2 (E)	3 (9.7)	7 (22.6)	13 (41.9)	4 (12.9)	4 (12.9)	3	
2 (C)	1 (1.6)	8 (12.9)	26 (41.9)	18 (29.0)	9 (14.5)	3	
3 (E)	1 (3.2)	4 (12.9)	15 (48.4)	8 (25.8)	3 (9.7)	3	
3 (C)	2 (3.3)	12 (19.7)	9 (14.8)	22 (36.1)	16 (26.2)	4	
4 (E)	5 (16.1)	6 (19.4)	10 (32.3)	7 (22.6)	3 (9.7)	3	
4 (C)	4 (6.6)	14 (23.0)	21 (34.4)	17 (27.9)	5 (8.2)	3	1
5 (E)	2 (6.7)	12 (40.0)	7 (23.3)	7 (23.3)	2 (6.7)	3	1
5 (C)	6 (9.8)	19 (31.1)	17 (27.9)	11 (18.0)	8 (13.1)	3	1
6 (E)	9 (29.0)	8 (25.8)	8 (25.8)	6 (19.4)	0	2	
6 (C)	3 (4.8)	16 (25.8)	19 (30.6)	15 (24.2)	9 (14.5)	3	
7 (E)	6 (19.4)	14 (45.2)	6 (19.4)	5 (16.1)	0	2	
7 (C)	8 (13.6)	12 (20.3)	16 (27.1)	17 (28.8)	6 (10.2)	3	3
8 (E)	8 (25.8)	3 (9.7)	7 (22.6)	6 (19.4)	7 (22.6)	3	
8 (C)	8 (13.1)	15 (24.6)	14 (23.0)	8 (13.1)	16 (26.2)	3	1
9 (E)	8 (25.8)	7 (22.6)	7 (22.6)	7 (22.6)	2 (6.5)	3	
9 (C)	8 (13.1)	14 (23.0)	18 (29.5)	15 (24.6)	6 (9.7)	3	1
10 (E)	1 (3.2)	3 (9.7)	6 (19.4)	8 (25.8)	13 (41.9)	4	
10 (C)	3 (4.9)	5 (8.2)	13 (21.3)	16 (26.2)	24 (39.3)	4	1
11 (E)	7 (22.6)	9 (29.0)	9 (29.0)	3 (9.7)	3 (9.7)	2	
11 (C)	6 (9.7)	15 (24.2)	23 (37.1)	11 (17.7)	7 (11.3)	3	
12 (E)	6 (19.4)	16 (51.6)	5 (16.1)	3 (9.7)	1 (3.2)	2	
12 (C)	8 (12.9)	11 (17.7)	25 (40.3)	14 (22.6)	4 (6.5)	3	
13 (E)	1 (3.2)	11 (35.5)	8 (25.8)	8 (25.8)	3 (9.7)	3	
13 (C)	3 (5.0)	11 (18.3)	15 (25.0)	20 (33.3)	11 (18.3)	4	2
14 (E)	0	11 (35.5)	9 (29.0)	6 (19.4)	5 (16.1)	3	
14 (C)	2 (3.3)	9 (15.0)	21 (35.0)	17 (28.3)	11 (18.3)	3	2
15 (E)	2 (6.5)	8 (25.8)	6 (19.4)	12 (38.7)	3 (9.7)	3	
15 (C)	6 (10.0)	9 (15.0)	16 (26.7)	22 (36.7)	7 (11.7)	3	2
16 (E)	4 (12.9)	9 (29.0)	13 (41.9)	3 (9.7)	2 (6.5)	3	
16 (C)	11 (18.0)	11 (18.0)	15 (24.6)	15 (24.6)	9 (14.8)	3	1

Table 2: Students enjoyment of different learning styles at the pre-test: Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	2 (6.5)	6 (19.4)	9 (29.0)	14 (45.2)	4	
1 (C)	1 (1.6)	2 (3.2)	5 (8.1)	26 (41.9)	28 (45.2)	4	
2 (E)	2 (6.5)	8 (25.8)	15 (48.4)	6 (19.4)	0	3	
2 (C)	2 (3.2)	7 (11.3)	23 (37.1)	25 (40.3)	5 (8.1)	3	
3 (E)	1 (3.2)	6 (19.4)	12 (38.7)	10 (32.3)	2 (6.5)	3	
3 (C)	3 (4.8)	10 (16.1)	17 (27.4)	18 (29.0)	14 (22.6)	4	
4 (E)	4 (12.9)	5 (16.1)	10 (32.3)	11 (35.5)	1 (3.2)	3	
4 (C)	4 (6.6)	10 (16.4)	21 (34.4)	18 (29.5)	8 (13.1)	3	1
5 (E)	2 (6.5)	8 (25.8)	12 (38.7)	6 (19.4)	3 (9.7)	3	
5 (C)	3 (5.0)	13 (21.7)	24 (40.0)	10 (16.7)	10 (16.7)	3	2
6 (E)	5 (16.1)	7 (22.6)	9 (29.0)	7 (22.6)	3 (9.7)	3	
6 (C)	4 (6.5)	12 (19.4)	19 (30.6)	18 (29.0)	9 (14.5)	3	
7 (E)	5 (16.1)	6 (19.4)	12 (38.7)	6 (19.4)	2 (6.5)	3	
7 (C)	3 (4.9)	9 (14.8)	20 (32.8)	21 (34.4)	8 (13.1)	3	1
8 (E)	5 (16.1)	3 (9.7)	9 (29.0)	9 (29.0)	5 (16.1)	3	
8 (C)	7 (11.3)	9 (14.5)	13 (21.0)	14 (22.6)	19 (30.9)	4	
9 (E)	2 (6.7)	8 (26.7)	10 (33.3)	9 (30.0)	1 (3.2)	3	1
9 (C)	2 (3.3)	9 (14.8)	21 (34.4)	18 (29.5)	11 (18.0)	3	1
10 (E)	3 (9.7)	3 (9.7)	7 (22.6)	9 (29.0)	9 (29.0)	4	
10 (C)	1 (1.6)	10 (16.1)	15 (24.2)	12 (19.4)	24 (38.7)	4	
11 (E)	2 (6.7)	12 (40.0)	7 (23.3)	8 (26.7)	1 (3.3)	3	1
11 (C)	3 (4.8)	9 (14.5)	27 (43.5)	15 (24.2)	8 (12.9)	3	
12 (E)	6 (20.7)	8 (27.6)	7 (24.1)	6 (20.7)	2 (6.9)	3	2
12 (C)	2 (3.3)	10 (16.4)	19 (31.1)	22 (36.1)	8 (12.9)	3	1
13 (E)	4 (12.9)	7 (22.6)	8 (25.8)	10 (32.3)	2 (6.5)	3	
13 (C)	1 (1.6)	8 (12.9)	14 (22.6)	21 (33.9)	18 (29.0)	4	
14 (E)	3 (9.7)	6 (19.4)	8 (25.8)	10 (32.3)	4 (12.9)	3	
14 (C)	4 (6.5)	11 (17.7)	19 (30.6)	14 (22.6)	14 (22.6)	3	
15 (E)	4 (12.9)	7 (22.6)	9 (29.0)	5 (16.1)	6 (19.4)	3	
15 (C)	6 (9.7)	9 (14.5)	17 (27.4)	19 (30.6)	11 (17.7)	3	
16 (E)	5 (16.1)	9 (29.0)	10 (32.3)	5 (16.1)	2 (6.5)	3	
16 (C)	8 (12.9)	12 (19.4)	17 (27.4)	13 (21.0)	12 (19.4)	3	



Table 3: Students enjoyment of different resources at the pre-test: Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	5 (16.1)	4 (12.9)	7 (22.9)	9 (29.0)	6 (19.4)	3	
1 (C)	3 (4.8)	6 (9.7)	10 (16.1)	20 (32.3)	23 (37.1)	4	
2 (E)	5 (16.1)	6 (19.4)	9 (29.0)	9 (29.0)	2 (6.5)	3	
2 (C)	7 (11.5)	7 (11.5)	22 (36.1)	18 (29.5)	7 (11.5)	3	1
3 (E)	5 (16.1)	3 (9.7)	5 (16.1)	3 (9.7)	15 (48.4)	4	
3 (C)	7 (11.3)	7 (11.3)	14 (23.0)	10 (16.4)	23 (37.7)	4	1
4 (E)	5 (16.1)	2 (6.5)	9 (29.0)	6 (19.4)	9 (29.0)	3	
4 (C)	5 (8.1)	6 (9.7)	14 (22.6)	20 (32.3)	17 (27.4)	4	
5 (E)	7 (22.6)	5 (16.1)	3 (9.7)	6 (19.4)	10 (32.3)	4	
5 (C)	13 (21.0)	13 (21.0)	13 (21.0)	14 (22.6)	9 (14.5)	3	
6 (E)	4 (12.9)	0	8 (25.8)	11 (35.5)	8 (25.8)	4	
6 (C)	5 (8.1)	5 (8.1)	13 (21.0)	22 (35.5)	17 (27.4)	4	
7 (E)	4 (12.9)	3 (9.7)	3 (9.7)	9 (29.0)	12 (38.7)	4	
7 (C)	5 (8.1)	5 (8.1)	12 (19.7)	17 (27.9)	22 (36.1)	4	1
8 (E)	6 (19.4)	5 (16.1)	8 (25.8)	8 (25.8)	4 (12.9)	3	
8 (C)	7 (11.3)	13 (21.0)	17 (27.4)	12 (19.4)	13 (21.0)	3	

Table 4: Students description of their geography teachers at the time of the pre-test: Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	2 (6.5)	2 (6.5)	5 (16.1)	20 (64.5)	5	
1 (C)	4 (6.5)	3 (4.8)	6 (9.7)	12 (19.4)	37 (59.7)	5	
2 (E)	0	1 (3.2)	6 (19.4)	2 (6.5)	22 (71.0)	5	
2 (C)	3 (4.8)	1 (1.6)	13 (21.0)	13 (21.0)	32 (51.6)	5	
3 (E)	2 (6.5)	1 (3.2)	3 (9.7)	4 (12.9)	21 (67.7)	5	
3 (C)	4 (6.5)	5 (8.1)	11 (17.7)	13 (21.0)	29 (46.8)	4	
4 (E)	2 (6.7)	1 (3.3)	5 (16.7)	4 (13.3)	18 (60.0)	5	1
4 (C)	7 (11.5)	6 (9.8)	17 (27.9)	16 (26.2)	15 (24.6)	4	1
5 (E)	1 (3.2)	3 (9.7)	2 (6.5)	4 (12.9)	21 (67.7)	5	
5 (C)	6 (9.8)	3 (4.9)	10 (16.4)	23 (37.7)	19 (31.1)	4	1
6 (E)	1 (3.2)	2 (6.5)	1 (3.2)	9 (29.0)	18 (58.1)	5	
6 (C)	4 (6.5)	6 (9.7)	18 (29.0)	15 (24.2)	19 (30.6)	4	
7 (E)	1 (3.2)	1 (3.2)	4 (12.9)	7 (22.6)	5 (58.1)	5	
7 (C)	8 (13.1)	5 (8.2)	13 (21.3)	18 (29.5)	17 (27.9)	4	1
8 (E)	2 (6.5)	3 (9.7)	2 (6.5)	6 (19.4)	18 (58.1)	5	
8 (C)	4 (6.5)	3 (4.8)	14 (22.6)	17 (27.4)	24 (38.7)	4	
9 (E)	2 (6.5)	1 (3.2)	6 (19.4)	10 (32.3)	12 (38.7)	4	
9 (C)	10 (16.4)	8 (13.1)	11 (18.0)	17 (27.9)	15 (24.6)	4	1

Table 5: Students enjoyment of geography content at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	3 (9.7)	11 (35.5)	10 (32.3)	5 (16.1)	3	
1 (C)	2 (3.2)	3 (4.8)	20 (32.3)	25 (40.3)	12 (19.4)	4	

Table 6: Using different resources in geography at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	1 (3.2)	8 (25.8)	4 (12.9)	16 (51.6)	5	
1 (C)	5 (8.1)	3 (4.8)	5 (8.1)	22 (35.5)	27 (43.5)	4	
2 (E)	8 (25.8)	8 (25.8)	8 (25.8)	2 (6.5)	5 (16.1)	2	
2 (C)	5 (8.1)	11 (17.7)	15 (24.2)	20 (32.3)	11 (17.7)	3.5	
3 (E)	10 (32.3)	2 (6.5)	8 (25.8)	5 (16.1)	6 (19.4)	3	
3 (C)	9 (14.5)	2 (3.2)	13 (21.0)	14 (22.6)	24 (38.7)	4	
4 (E)	10 (32.3)	2 (6.5)	8 (25.8)	6 (19.4)	4 (12.9)	3	
4 (C)	4 (6.6)	12 (19.7)	12 (19.7)	13 (21.3)	20 (32.8)	4	1
5 (E)	10 (32.3)	8 (25.8)	4 (12.9)	4 (12.9)	5 (16.1)	2	
5 (C)	14 (22.6)	4 (6.5)	19 (30.6)	13 (21.0)	12 (19.4)	3	
6 (E)	6 (19.4)	2 (6.5)	10 (32.3)	7 (22.6)	6 (19.4)	3	
6 (C)	7 (11.3)	7 (11.3)	11 (17.7)	18 (29.0)	19 (30.6)	4	
7 (E)	1 (3.2)	2 (6.5)	4 (12.9)	4 (12.9)	20 (64.5)	5	
7 (C)	7 (11.3)	3 (4.8)	12 (19.4)	15 (24.2)	25 (40.3)	4	
8 (E)	7 (22.6)	5 (16.1)	8 (25.8)	7 (22.6)	4 (12.9)	3	
8 (C)	10 (16.1)	10 (16.1)	15 (24.2)	18 (29.0)	9 (14.5)	3	

Table 7: Reasons that make geography important at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	3 (9.7)	2 (6.5)	9 (29.0)	15 (48.4)	4	
1 (C)	4 (6.5)	6 (9.7)	13 (21.0)	14 (22.6)	25 (40.3)	4	
2 (E)	1 (3.2)	2 (6.5)	1 (3.2)	13 (41.9)	14 (45.2)	4	
2 (C)	3 (4.8)	4 (6.5)	12 (19.4)	28 (45.2)	15 (24.2)	4	
3 (E)	1 (3.2)	2 (6.5)	6 (19.4)	6 (19.4)	16 (51.6)	5	
3 (C)	2 (3.3)	5 (8.2)	14 (23.0)	21 (34.4)	19 (31.1)	4	1
4 (E)	1 (3.2)	0	7 (22.6)	11 (35.5)	12 (38.7)	4	
4 (C)	2 (3.3)	3 (4.9)	13 (21.3)	27 (44.3)	16 (26.2)	4	1
5 (E)	0	1 (3.2)	7 (22.6)	11 (35.5)	12 (38.7)	4	
5 (C)	1 (1.6)	5 (8.1)	17 (27.4)	15 (24.2)	24 (38.7)	4	
6 (E)	0	1 (3.2)	8 (25.8)	11 (35.5)	11 (35.5)	4	
6 (C)	1 (1.6)	5 (8.1)	12 (19.4)	20 (32.3)	24 (38.7)	4	
7 (E)	4 (12.9)	1 (3.2)	5 (16.1)	6 (19.4)	15 (48.4)	4	
7 (C)	2 (3.2)	4 (6.5)	10 (16.1)	20 (32.3)	26 (41.9)	4	
8 (E)	7 (22.6)	2 (6.5)	8 (25.8)	6 (19.4)	8 (25.8)	3	
8 (C)	9 (14.5)	8 (12.9)	15 (24.2)	18 (29.0)	12 (19.4)	3	





## Appendix (15) Frequencies and Percentages of the Experimental and Control Groups at the Post-test

Table 1: Using different learning styles at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	1 (3.2)	0	6 (19.4)	24 (77.4)	4	
1 (C)	7 (11.3)	8 (12.9)	18 (29.0)	20 (32.3)	9 (14.5)	3	
2 (E)	10 (32.3)	6 (19.4)	8 (25.8)	4 (12.9)	3 (9.7)	2	
2 (C)	7 (11.3)	8 (12.9)	18 (29.0)	20 (32.3)	9 (14.5)	3	
3 (E)	5 (16.1)	8 (25.8)	10 (32.3)	5 (16.1)	3 (9.7)	3	
3 (C)	9 (14.8)	12 (19.7)	11 (18.0)	15 (24.6)	14 (23.0)	3	1
4 (E)	18 (58.1)	6 (19.4)	6 (19.4)	1 (3.2)	0	1	
4 (C)	17 (28.3)	12 (20.0)	18 (30.0)	10 (16.7)	3 (5.0)	3	2
5 (E)	8 (25.8)	15 (48.4)	3 (9.7)	1 (3.2)	4 (12.9)	2	
5 (C)	8 (12.9)	13 (21.0)	20 (32.3)	15 (24.2)	6 (9.7)	3	
6 (E)	12 (38.7)	8 (25.8)	5 (16.1)	4 (12.9)	2 (6.5)	2	
6 (C)	13 (21.0)	18 (29.0)	13 (21.0)	11 (17.7)	7 (11.3)	2.5	
7 (E)	10 (32.3)	11 (35.5)	9 (29.0)	1 (3.2)	0	2	
7 (C)	11 (18.0)	17 (27.9)	17 (27.9)	12 (19.7)	4 (6.6)	3	1
8 (E)	24 (77.4)	4 (12.9)	1 (3.2)	2 (6.5)	0	1	
8 (C)	39 (62.9)	7 (11.3)	5 (8.1)	2 (3.2)	9 (14.5)	1	
9 (E)	24 (77.4)	6 (19.4)	1 (3.2)	0	0	1	
9 (C)	17 (27.4)	13 (21.0)	16 (25.8)	14 (22.6)	2 (3.2)	3	
10 (E)	0	2 (6.5)	11 (35.5)	8 (25.8)	10 (32.3)	4	
10 (C)	4 (6.7)	3 (5.0)	5 (8.3)	18 (30.0)	30 (50.0)	4.5	2
11 (E)	17 (54.8)	9 (29.0)	3 (9.7)	1 (3.2)	1 (3.2)	1	
11 (C)	13 (21.3)	22 (36.1)	13 (21.3)	8 (13.1)	5 (8.2)	2	1
12 (E)	12 (38.7)	12 (38.7)	4 (12.9)	3 (9.7)	0	2	
12 (C)	13 (21.3)	14 (23.0)	18 (29.5)	11 (18.0)	5 (8.2)	3	1
13 (E)	8 (25.8)	11 (35.5)	8 (25.8)	3 (9.7)	1 (3.2)	2	
13 (C)	4 (6.6)	15 (24.6)	17 (27.9)	19 (31.1)	6 (9.8)	3	1
14 (E)	10 (32.3)	9 (29.0)	6 (19.4)	1 (3.2)	5 (16.1)	2	
14 (C)	8 (13.1)	12 (19.7)	16 (26.2)	15 (24.6)	10 (16.4)	3	1
15 (E)	8 (25.8)	7 (22.6)	6 (19.4)	6 (19.4)	4 (12.9)	3	
15 (C)	10 (16.1)	7 (11.3)	13 (21.0)	25 (40.3)	7 (11.3)	4	
16 (E)	15 (48.4)	7 (22.6)	5 (16.1)	2 (6.5)	2 (6.5)	2	
16 (C)	15 (24.2)	19 (30.6)	9 (14.5)	10 (16.1)	9 (14.5)	2	



Table 2: Students enjoyment of different learning styles at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	5 (16.1)	3 (9.7)	5 (16.1)	18 (58.1)	5	
1 (C)	1 (1.6)	2 (3.2)	9 (14.5)	16 (25.8)	34 (54.8)	5	
2 (E)	5 (16.1)	8 (25.8)	9 (29.0)	8 (25.8)	1 (3.2)	3	
2 (C)	4 (6.5)	13 (21.0)	14 (22.6)	19 (30.6)	12 (19.4)	3.5	
3 (E)	3 (10.0)	4 (13.3)	10 (33.3)	5 (16.7)	8 (26.7)	3	1
3 (C)	2 (3.2)	12 (19.4)	17 (27.4)	20 (32.3)	11 (17.7)	3.5	
4 (E)	6 (19.4)	7 (22.6)	9 (29.0)	4 (12.9)	5 (16.1)	3	
4 (C)	6 (9.7)	11 (17.7)	22 (35.5)	18 (29.0)	5 (8.1)	3	
5 (E)	5 (16.1)	4 (12.9)	7 (22.6)	6 (19.4)	9 (29.0)	3	
5 (C)	10 (16.7)	9 (15.0)	20 (33.3)	15 (25.0)	6 (10.0)	3	2
6 (E)	6 (19.4)	6 (19.4)	8 (25.8)	5 (16.1)	6 (19.4)	3	
6 (C)	7 (11.3)	12 (19.4)	16 (25.8)	23 (37.1)	4 (6.5)	3	
7 (E)	5 (16.1)	9 (19.0)	9 (29.0)	4 (12.9)	4 (12.9)	3	
7 (C)	5 (8.3)	16 (26.7)	20 (33.3)	13 (21.7)	6 (10.0)	3	2
8 (E)	7 (22.6)	4 (12.9)	6 (19.4)	3 (9.7)	11 (35.5)	3	
8 (C)	13 (21.0)	5 (8.1)	13 (21.0)	13 (21.0)	18 (29.0)	3.5	
9 (E)	10 (32.3)	6 (19.4)	6 (19.4)	7 (22.6)	2 (6.5)	2	
9 (C)	5 (8.1)	11 (17.7)	22 (35.5)	16 (25.8)	8 (12.9)	3	
10 (E)	1 (3.2)	4 (12.9)	8 (25.8)	5 (16.1)	13 (41.9)	4	
10 (C)	5 (8.1)	7 (11.3)	13 (21.0)	18 (29.0)	19 (30.6)	4	
11 (E)	10 (32.3)	6 (19.4)	8 (25.8)	4 (12.9)	3 (9.7)	2	
11 (C)	9 (15.0)	10 (16.7)	19 (31.7)	12 (20.0)	10 (16.7)	3	2
12 (E)	7 (22.6)	7 (22.6)	6 (19.4)	5 (16.1)	6 (19.4)	3	
12 (C)	8 (12.9)	6 (9.7)	19 (30.6)	24 (38.7)	5 (8.1)	3	
13 (E)	6 (19.4)	2 (6.5)	8 (25.8)	12 (38.7)	3 (9.7)	3	
13 (C)	3 (4.9)	14 (23.0)	14 (23.0)	18 (29.5)	12 (19.7)	3	1
14 (E)	5 (16.1)	5 (16.1)	10 (32.3)	6 (19.4)	5 (16.1)	3	
14 (C)	6 (9.7)	9 (14.5)	18 (29.0)	22 (35.5)	7 (11.3)	3	
15 (E)	4 (12.9)	8 (25.8)	8 (25.8)	3 (9.7)	5 (25.8)	3	
15 (C)	9 (14.5)	11 (17.7)	14 (22.6)	19 (30.6)	9 (14.5)	3	
16 (E)	7 (22.6)	3 (9.7)	8 (25.8)	7 (22.6)	6 (19.4)	3	
16 (C)	10 (16.1)	13 (21.0)	17 (27.4)	13 (21.0)	9 (14.5)	3	

Table 3: Students enjoyment of different resources at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	3 (9.7)	1 (3.2)	5 (16.1)	10 (32.3)	12 (38.7)	4	
1 (C)	3 (4.8)	2 (3.2)	12 (19.4)	25 (40.3)	20 (32.3)	4	
2 (E)	7 (22.6)	5 (16.1)	5 (16.1)	10 (32.3)	4 (12.9)	3	
2 (C)	2 (3.2)	10 (16.1)	23 (37.1)	18 (29.0)	9 (14.5)	3	
3 (E)	5 (16.1)	2 (6.5)	2 (6.5)	4 (12.9)	18 (58.1)	5	
3 (C)	7 (11.3)	6 (9.7)	8 (12.9)	13 (21.0)	28 (45.3)	4	
4 (E)	5 (16.1)	1 (3.2)	4 (12.9)	8 (25.8)	13 (41.9)	4	
4 (C)	8 (12.9)	4 (6.5)	15 (24.2)	12 (19.4)	23 (37.1)	4	
5 (E)	7 (22.6)	5 (16.1)	7 (22.6)	5 (16.1)	7 (22.6)	3	
5 (C)	11 (17.7)	14 (22.6)	20 (32.3)	8 (12.9)	9 (14.5)	3	
6 (E)	3 (9.7)	2 (6.5)	4 (12.9)	6 (19.4)	16 (51.6)	5	
6 (C)	4 (6.5)	5 (8.1)	13 (21.0)	20 (32.3)	20 (32.2)	4	
7 (E)	3 (9.7)	1 (3.2)	3 (9.7)	7 (22.6)	17 (54.8)	5	
7 (C)	3 (4.8)	4 (6.5)	10 (16.1)	19 (30.6)	26 (41.9)	4	
8 (E)	7 (22.6)	3 (9.7)	5 (16.1)	8 (25.8)	8 (25.8)	4	
8 (C)	10 (16.4)	11 (18.0)	14 (23.0)	11 (18.0)	15 (24.6)	3	1

Table 4: Students description of their geography teachers at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	2 (6.5)	7 (22.6)	3 (9.7)	19 (61.3)	5	
1 (C)	2 (3.2)	1 (1.6)	7 (11.3)	11 (17.7)	41 (66.1)	5	
2 (E)	0	1 (3.2)	4 (12.9)	9 (29.0)	17 (54.8)	5	
2 (C)	2 (3.2)	1 (1.6)	5 (8.1)	17 (27.4)	37 (59.7)	5	
3 (E)	0	1 (3.2)	7 (22.6)	8 (25.8)	15 (48.4)	4	
3 (C)	6 (9.7)	4 (6.5)	7 (11.3)	14 (22.6)	31 (50.0)	4.5	
4 (E)	1 (3.2)	3 (9.7)	6 (19.4)	13 (41.9)	8 (25.8)	4	
4 (C)	6 (9.7)	5 (8.1)	17 (27.4)	8 (12.9)	26 (41.9)	4	
5 (E)	0	2 (6.5)	5 (16.1)	11 (35.5)	13 (41.9)	4	
5 (C)	5 (8.2)	3 (4.9)	9 (14.8)	17 (27.9)	27 (44.3)	4	1
6 (E)	2 (6.5)	2 (6.5)	5 (16.1)	6 (19.4)	16 (51.6)	5	
6 (C)	4 (6.5)	3 (4.8)	12 (19.4)	14 (22.6)	29 (46.8)	4	
7 (E)	2 (6.5)	2 (6.5)	10 (32.3)	5 (16.1)	12 (38.7)	4	
7 (C)	5 (8.2)	3 (4.9)	13 (21.3)	17 (27.9)	23 (37.7)	4	1
8 (E)	3 (9.7)	2 (6.5)	4 (12.9)	8 (25.8)	14 (45.2)	4	
8 (C)	3 (5.1)	2 (3.4)	9 (15.3)	20 (33.9)	25 (42.4)	4	3
9 (E)	5 (16.1)	2 (6.5)	6 (19.4)	8 (25.8)	10 (32.3)	4	
9 (C)	7 (11.7)	7 (11.7)	15 (25.0)	13 (21.0)	18 (30.0)	4	2



Table 5: Students enjoyment of geography content at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	1 (3.2)	3 (9.7)	10 (32.3)	12 (38.7)	5 (16.1)	4	
1 (C)	2 (3.2)	5 (8.1)	12 (19.4)	32 (51.6)	11 (17.7)	4	

Table 6: Using different resources in geography at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	11 (35.5)	2 (6.5)	4 (12.9)	4 (12.9)	10 (32.3)	3	
1 (C)	6 (9.7)	3 (4.8)	8 (12.9)	17 (27.4)	28 (45.2)	4	
2 (E)	20 (64.5)	4 (12.9)	4 (12.9)	2 (6.5)	1 (3.2)	1	
2 (C)	20 (32.3)	6 (9.7)	12 (19.4)	14 (22.6)	10 (16.1)	3	
3 (E)	21 (67.7)	4 (12.9)	1 (3.2)	2 (6.5)	3 (9.7)	1	
3 (C)	34 (55.7)	3 (4.9)	3 (4.9)	9 (14.8)	12 (19.7)	1	1
4 (E)	21 (67.7)	4 (12.9)	1 (3.2)	4 (12.9)	1 (3.2)	1	
4 (C)	36 (58.1)	3 (4.8)	5 (8.1)	8 (12.9)	10 (16.1)	1	
5 (E)	22 (71.0)	5 (16.1)	0	3 (9.7)	1 (3.2)	1	
5 (C)	36 (58.1)	2 (3.2)	11 (17.7)	9 (14.5)	4 (6.5)	1	
6 (E)	12 (38.7)	5 (16.1)	4 (12.9)	6 (19.4)	4 (12.9)	2	
6 (C)	20 (32.3)	4 (6.5)	6 (9.7)	16 (25.8)	16 (25.8)	4	
7 (E)	11 (36.7)	4 (13.3)	6 (20.3)	4 (13.3)	5 (16.7)	2.5	1
7 (C)	17 (27.4)	6 (9.7)	9 (14.5)	15 (24.2)	15 (24.2)	3	
8 (E)	18 (58.1)	5 (16.1)	6 (19.4)	2 (6.5)	0	1	
8 (C)	35 (56.5)	5 (8.1)	8 (12.9)	7 (11.3)	7 (11.3)	1	

Table 7: Reasons that make geography important at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	7 (22.6)	9 (29.0)	6 (19.4)	7 (22.6)	3	
1 (C)	4 (6.5)	8 (12.9)	12 (19.4)	23 (37.1)	15 (24.2)	4	
2 (E)	2 (6.5)	3 (9.7)	12 (38.7)	10 (32.3)	4 (12.9)	3	
2 (C)	4 (6.5)	6 (9.7)	18 (29.0)	23 (37.1)	11 (17.7)	4	
3 (E)	2 (6.5)	3 (9.7)	10 (32.3)	7 (22.6)	9 (29.0)	4	
3 (C)	5 (8.1)	8 (12.9)	13 (21.0)	24 (38.7)	12 (19.4)	4	
4 (E)	0	5 (16.1)	5 (16.1)	15 (48.4)	6 (19.4)	4	
4 (C)	4 (6.5)	4 (6.5)	22 (35.5)	17 (27.4)	15 (24.2)	4	
5 (E)	2 (6.5)	6 (19.4)	7 (22.6)	10 (32.3)	6 (19.4)	4	
5 (C)	5 (8.1)	3 (4.8)	17 (27.4)	23 (37.1)	14 (22.6)	4	
6 (E)	2 (6.5)	0	7 (22.6)	12 (38.7)	10 (32.3)	4	
6 (C)	2 (3.2)	3 (4.8)	11 (17.7)	29 (46.8)	17 (27.4)	4	
7 (E)	6 (19.4)	4 (12.9)	3 (9.7)	8 (25.8)	10 (32.3)	4	
7 (C)	7 (11.3)	8 (12.9)	7 (11.3)	17 (27.4)	23 (37.1)	4	
8 (E)	9 (29.0)	5 (16.1)	7 (22.6)	7 (22.6)	3 (9.7)	3	
8 (C)	11 (17.7)	11 (17.7)	14 (22.6)	18 (29.0)	8 (12.9)	3	



# **Appendix (15) Frequencies and Percentages of the Experimental and Control Groups at the Postponed test**

Table 1 : Using different learning styles at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	1 (3.2)	2 (6.5)	2 (6.5)	26 (83.9)	5	
1 (C)	1 (1.6)	0	6 (9.8)	19 (31.1)	35 (57.4)	4.4	1
2 (E)	6 (19.4)	9 (29.0)	8 (25.8)	5 (16.1)	3 (9.7)	3	
2 (C)	8 (12.9)	10 (16.1)	17 (27.4)	19 (30.6)	8 (12.9)	3	
3 (E)	5 (16.1)	8 (25.8)	6 (19.4)	10 (32.3)	2 (6.5)	3	
3 (C)	4 (6.5)	10 (16.1)	23 (37.1)	19 (30.6)	6 (9.7)	3	
4 (E)	16 (51.6)	8 (25.8)	4 (12.9)	1 (3.2)	2 (6.5)	1	
4 (C)	19 (30.6)	13 (21.0)	15 (24.2)	11 (17.7)	4 (6.5)	2	
5 (E)	6 (19.4)	11 (35.5)	9 (29.0)	5 (16.1)	0	2	
5 (C)	16 (25.8)	11 (17.7)	15 (24.2)	18 (29.0)	2 (3.2)	3	
6 (E)	8 (25.8)	13 (41.9)	7 (22.6)	3 (9.7)	0	2	
6 (C)	12 (19.7)	15 (24.6)	16 (26.2)	13 (21.3)	5 (8.2)	3	1
7 (E)	12 (38.7)	6 (19.4)	10 (32.3)	1 (3.2)	2 (6.5)	2	
7 (C)	12 (19.4)	21 (33.9)	12 (19.4)	10 (16.1)	7 (11.3)	2	
8 (E)	20 (64.5)	5 (19.4)	1 (3.2)	4 (12.9)	0	1	
8 (C)	31 (50.0)	9 (14.5)	7 (11.3)	6 (9.7)	9 (14.5)	1.5	
9 (E)	20 (64.5)	6 (19.4)	4 (12.9)	0	1 (3.2)	1	
9 (C)	19 (31.1)	18 (29.5)	10 (16.4)	8 (13.1)	6 (9.8)	2	1
10 (E)	0	4 (12.9)	5 (16.1)	11 (35.5)	11 (35.5)	4	
10 (C)	4 (6.5)	4 (6.5)	15 (24.2)	22 (35.5)	17 (27.4)	4	
11 (E)	14 (45.2)	9 (29.0)	3 (16.1)	3 (9.7)	0	2	
11 (C)	21 (33.9)	16 (25.8)	11 (17.7)	11 (17.7)	3 (4.8)	2	
12 (E)	13 (41.9)	12 (38.7)	5 (16.1)	1 (3.2)	0	2	
12 (C)	17 (27.4)	14 (22.6)	18 (29.0)	8 (12.9)	5 (8.1)	2.5	
13 (E)	13 (41.9)	12 (38.7)	5 (16.1)	1 (3.2)	0	2	
13 (C)	6 (9.8)	17 (27.9)	15 (24.6)	19 (31.1)	4 (6.6)	3	1
14 (E)	6 (19.4)	11 (35.5)	9 (29.0)	5 (16.1)	0	2	
14 (C)	8 (13.1)	11 (18.0)	15 (24.6)	23 (37.7)	4 (6.6)	3	1
15 (E)	5 (16.1)	13 (41.9)	7 (22.6)	3 (9.7)	3 (9.7)	2	
15 (C)	12 (19.4)	16 (25.8)	12 (19.4)	15 (24.2)	7 (11.3)	3	
16 (E)	13 (41.9)	8 (25.8)	5 (16.1)	4 (12.9)	1 (3.2)	2	
16 (C)	16 (25.8)	13 (21.0)	16 (25.8)	9 (14.5)	8 (12.9)	3	

Table 2: Students enjoyment of different learning styles at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	3 (9.7)	2 (6.5)	7 (22.6)	17 (54.8)	5	
1 (C)	2 (3.2)	2 (3.2)	4 (6.5)	22 (35.5)	32 (51.6)	5	
2 (E)	3 (9.7)	6 (19.4)	12 (38.7)	8 (25.8)	2 (6.5)	3	
2 (C)	7 (11.3)	6 (9.7)	17 (27.4)	20 (32.3)	12 (19.4)	4	
3 (E)	3 (9.7)	5 (16.1)	9 (29.0)	9 (29.0)	5 (16.1)	3	
3 (C)	4 (6.5)	8 (12.9)	20 (32.3)	23 (37.1)	7 (11.3)	3	
4 (E)	4 (12.9)	19 (29.0)	8 (25.8)	6 (19.4)	4 (12.9)	3	
4 (C)	10 (16.4)	10 (16.4)	21 (34.4)	15 (24.6)	5 (8.2)	3	1
5 (E)	6 (19.4)	9 (29.0)	9 (29.0)	5 (16.1)	2 (6.5)	3	
5 (C)	10 (16.4)	15 (24.6)	16 (26.2)	17 (27.9)	3 (4.9)	3	1
6 (E)	4 (12.9)	7 (22.6)	12 (38.7)	6 (19.4)	2 (6.5)	3	
6 (C)	11 (18.0)	15 (24.6)	19 (31.1)	10 (16.4)	6 (9.8)	3	1
7 (E)	6 (12.9)	9 (29.0)	9 (29.0)	8 (25.8)	1 (3.2)	3	
7 (C)	9 (14.8)	16 (26.2)	18 (29.5)	10 (16.4)	8 (13.1)	3	1
8 (E)	6 (19.4)	3 (9.7)	3 (9.7)	9 (29.0)	10 (32.3)	4	
8 (C)	12 (19.4)	9 (14.5)	10 (16.1)	13 (21.0)	18 (29.0)	3.5	
9 (E)	7 (22.6)	7 (22.6)	10 (32.3)	4 (12.9)	3 (9.7)	3	
9 (C)	7 (11.3)	15 (24.2)	18 (29.0)	16 (25.8)	6 (9.7)	3	
10 (E)	4 (12.9)	6 (19.4)	3 (9.7)	9 (29.0)	9 (29.0)	4	
10 (C)	2 (3.3)	11 (18.0)	14 (23.0)	17 (27.9)	17 (27.9)	4	1
11 (E)	4 (12.9)	9 (29.0)	7 (22.6)	8 (25.8)	3 (9.7)	3	
11 (C)	12 (19.4)	17 (27.4)	18 (29.0)	9 (14.5)	6 (9.7)	3	
12 (E)	4 (12.9)	9 (29.0)	7 (22.6)	11 (35.5)	0	3	
12 (C)	6 (9.7)	14 (22.6)	20 (32.3)	17 (27.4)	5 (8.1)	3	
13 (E)	5 (16.1)	11 (35.5)	5 (16.1)	8 (25.8)	2 (6.5)	2	
13 (C)	5 (8.2)	17 (27.9)	19 (31.1)	14 (23.0)	6 (9.8)	3	1
14 (E)	2 (6.5)	5 (16.1)	12 (38.7)	10 (32.3)	2 (6.5)	3	
14 (C)	3 (4.8)	10 (16.1)	23 (37.1)	16 (25.8)	10 (16.1)	3	
15 (E)	6 (19.4)	4 (12.9)	12 (38.7)	3 (9.7)	6 (19.4)	3	
15 (C)	13 (21.0)	12 (19.4)	17 (27.4)	12 (19.4)	8 (12.9)	3	
16 (E)	7 (22.6)	4 (12.9)	11 (35.5)	6 (19.4)	3 (9.7)	3	
16 (C)	13 (21.0)	12 (19.4)	23 (37.1)	10 (16.1)	4 (6.5)	3	



Table 3: Students enjoyment of different resources at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	5 (16.1)	3 (9.7)	10 (32.3)	11 (35.5)	4	
1 (C)	4 (6.5)	6 (9.7)	18 (29.0)	15 (24.2)	19 (30.6)	4	
2 (E)	2 (6.5)	8 (25.8)	8 (25.8)	9 (29.0)	4 (12.9)	3	
2 (C)	9 (14.5)	11 (17.7)	21 (33.9)	12 (19.4)	9 (14.5)	3	
3 (E)	7 (22.6)	3 (9.7)	0	9 (29.0)	12 (38.7)	4	
3 (C)	8 (12.9)	5 (8.1)	13 (21.0)	12 (19.4)	24 (38.7)	4	
4 (E)	6 (19.4)	1 (3.2)	2 (6.5)	11 (35.5)	11 (35.5)	4	
4 (C)	8 (12.9)	5 (8.1)	14 (22.6)	14 (22.6)	21 (33.9)	4	
5 (E)	6 (19.4)	4 (12.9)	7 (22.6)	9 (19.0)	5 (16.1)	3	
5 (C)	15 (24.2)	7 (11.3)	19 (30.6)	10 (16.1)	11 (17.7)	3	
6 (E)	6 (19.4)	1 (3.2)	5 (16.1)	11 (35.5)	8 (25.8)	4	
6 (C)	5 (8.1)	5 (8.1)	15 (24.2)	16 (25.8)	21 (33.9)	4	
7 (E)	4 (12.9)	0	3 (9.7)	10 (32.3)	14 (45.2)	4	
7 (C)	5 (8.1)	6 (9.7)	15 (24.2)	12 (19.4)	24 (38.7)	4	
8 (E)	7 (22.6)	8 (25.8)	4 (12.9)	4 (12.9)	8 (25.8)	3	
8 (C)	8 (12.9)	8 (12.9)	17 (27.4)	15 (24.2)	14 (22.6)	3	

Table 4: Students description of their geography teachers at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	1 (3.2)	2 (6.5)	5 (16.1)	3 (9.7)	20 (64.5)	5	
1 (C)	4 (6.5)	2 (3.2)	9 (14.5)	13 (21.0)	34 (54.8)	5	
2 (E)	0	3 (9.7)	2 (6.5)	8 (25.8)	18 (58.1)	5	
2 (C)	3 (4.8)	1 (1.6)	7 (11.3)	21 (33.9)	30 (48.4)	4	
3 (E)	2 (6.5)	1 (3.2)	6 (19.4)	5 (16.1)	17 (54.8)	5	
3 (C)	8 (12.9)	6 (9.7)	9 (14.5)	13 (21.0)	26 (41.9)	4	
4 (E)	3 (9.7)	5 (16.1)	5 (16.1)	6 (19.4)	12 (38.7)	4	
4 (C)	7 (11.5)	4 (6.6)	9 (14.8)	15 (24.6)	26 (42.6)	4	1
5 (E)	3 (9.7)	1 (3.2)	4 (12.9)	10 (32.3)	13 (41.9)	4	
5 (C)	5 (8.1)	2 (3.2)	6 (9.7)	16 (25.8)	33 (53.2)	5	
6 (E)	0	3 (9.7)	4 (12.9)	10 (32.3)	14 (45.2)	4	
6 (C)	5 (8.1)	5 (8.1)	10 (16.1)	11 (17.7)	31 (50.0)	4.5	
7 (E)	3 (9.7)	3 (9.7)	7 (22.6)	7 (22.6)	11 (35.5)	4	
7 (C)	4 (6.5)	4 (6.5)	10 (16.1)	20 (32.3)	24 (38.7)	4	
8 (E)	2 (6.5)	2 (6.5)	2 (6.5)	8 (25.8)	17 (54.8)	5	
8 (C)	1 (1.6)	4 (6.5)	7 (11.3)	19 (30.6)	31 (50.0)	4.5	
9 (E)	1 (3.2)	4 (12.9)	5 (16.1)	12 (38.7)	9 (29.0)	4	
9 (C)	3 (4.8)	7 (11.3)	13 (21.0)	21 (33.9)	18 (29.0)	4	



Table 5: Students enjoyment of geography content at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	4 (12.9)	5 (16.1)	4 (12.9)	15 (48.4)	3 (9.7)	4	
1 (C)	2 (3.2)	2 (3.2)	16 (25.8)	33 (53.2)	9 (14.5)	4	

Table 6: Using different resources in geography at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	7 (22.6)	3 (9.7)	4 (12.9)	9 (29.0)	8 (25.8)	4	
1 (C)	5 (8.1)	5 (8.1)	11 (17.7)	15 (24.2)	26 (41.9)	4	
2 (E)	11 (35.5)	4 (12.9)	6 (19.4)	4 (12.9)	6 (19.4)	3	
2 (C)	20 (32.3)	16 (25.8)	11 (17.7)	8 (12.9)	7 (11.3)	2	
3 (E)	11 (35.5)	5 (16.1)	4 (12.9)	7 (22.6)	4 (12.9)	2	
3 (C)	22 (35.5)	7 (11.3)	13 (21.0)	6 (9.7)	14 (22.6)	3	
4 (E)	12 (38.7)	7 (22.6)	4 (12.9)	3 (9.7)	5 (16.1)	2	
4 (C)	20 (32.3)	13 (21.0)	7 (11.3)	10 (16.1)	12 (19.4)	2	
5 (E)	15 (48.4)	7 (22.6)	3 (9.7)	3 (9.7)	3 (9.7)	2	
5 (C)	25 (40.3)	14 (22.6)	12 (19.4)	2 (3.2)	9 (14.5)	2	
6 (E)	8 (25.8)	7 (22.6)	7 (22.6)	5 (16.1)	4 (12.9)	3	
6 (C)	7 (11.3)	9 (14.5)	12 (19.4)	20 (32.3)	14 (22.6)	4	
7 (E)	3 (9.7)	3 (9.7)	3 (9.7)	12 (38.7)	10 (32.3)	4	
7 (C)	3 (4.8)	7 (11.3)	12 (19.4)	19 (30.6)	21 (33.9)	4	
8 (E)	13 (41.9)	5 (16.1)	3 (9.7)	5 (16.1)	5 (16.1)	2	
8 (C)	16 (25.8)	8 (12.9)	19 (30.6)	8 (12.9)	11 (17.7)	3	

Table 7: Reasons that make geography important at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	1 (3.2)	8 (25.8)	10 (32.3)	4 (12.9)	8 (25.8)	3	
1 (C)	4 (6.5)	9 (14.5)	15 (24.2)	21 (33.9)	13 (21.0)	4	
2 (E)	1 (3.2)	3 (9.7)	6 (19.4)	16 (51.6)	5 (16.1)	4	
2 (C)	2 (3.2)	3 (4.8)	23 (37.1)	20 (32.3)	14 (22.6)	4	
3 (E)	2 (6.5)	2 (6.5)	7 (22.6)	11 (35.5)	9 (29.0)	4	
3 (C)	5 (8.1)	4 (6.5)	20 (32.3)	23 (37.1)	10 (16.1)	4	
4 (E)	1 (3.2)	5 (16.1)	5 (16.1)	13 (41.9)	7 (22.6)	4	
4 (C)	3 (4.8)	6 (9.7)	20 (32.3)	21 (33.9)	12 (19.4)	4	
5 (E)	0	5 (16.1)	4 (12.9)	14 (45.2)	8 (25.8)	4	
5 (C)	3 (4.8)	3 (4.8)	16 (25.8)	22 (35.5)	18 (29.0)	4	
6 (E)	1 (3.2)	2 (6.5)	5 (16.1)	14 (45.2)	9 (29.0)	4	
6 (C)	4 (6.5)	2 (3.2)	18 (29.0)	22 (35.5)	16 (25.8)	4	
7 (E)	3 (9.7)	3 (9.7)	2 (6.5)	14 (45.2)	9 (29.0)	4	
7 (C)	8 (12.9)	6 (9.7)	16 (25.8)	11 (17.7)	21 (33.9)	4	
8 (E)	5 (16.1)	5 (16.1)	8 (25.8)	9 (29.0)	4 (12.9)	3	
8 (C)	11 (17.7)	13 (21.0)	14 (22.6)	14 (22.6)	10 (16.1)	3	

**Appendix (15) Frequencies and Percentages of the Experimental and Control Groups at the Pre-test (Science)**

**Table 1: Using different learning styles at the pre-test: Frequencies and percentages (%)**

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	3 (9.7)	4 (12.9)	7 (22.6)	17 (54.8)	5	
1 (C)	0	1 (1.6)	6 (9.7)	21 (33.9)	34 (54.8)	5	
2 (E)	1 (3.2)	6 (19.4)	11 (35.5)	10 (32.3)	3 (9.7)	3	
2 (C)	4 (6.5)	6 (9.7)	21 (33.9)	22 (35.5)	9 (14.5)	3.5	
3 (E)	4 (12.9)	7 (22.6)	10 (32.3)	7 (22.6)	3 (9.7)	3	
3 (C)	3 (4.8)	8 (12.9)	14 (22.6)	21 (33.9)	16 (25.8)	4	
4 (E)	3 (9.7)	8 (32.3)	12 (38.7)	5 (16.1)	3 (9.7)	3	
4 (C)	5 (8.2)	10 (16.4)	22 (36.1)	14 (32.0)	10 (16.4)	3	1
5 (E)	2 (6.5)	10 (32.3)	6 (19.4)	10 (32.3)	3 (9.7)	3	
5 (C)	7 (11.3)	9 (14.5)	18 (29.0)	17 (27.4)	11 (17.7)	3	
6 (E)	7 (22.6)	9 (29.0)	10 (32.3)	4 (12.9)	1 (3.2)	2	
6 (C)	4 (6.6)	14 (23.0)	18 (29.5)	17 (27.9)	8 (13.1)	3	1
7 (E)	6 (19.4)	6 (19.4)	14 (45.2)	3 (9.7)	2 (6.5)	3	
7 (C)	8 (13.1)	12 (19.7)	22 (36.1)	12 (19.7)	7 (11.5)	3	1
8 (E)	5 (16.1)	3 (9.7)	5 (16.1)	10 (32.3)	8 (25.8)	4	
8 (C)	4 (6.5)	9 (14.5)	16 (25.8)	12 (19.4)	21 (33.9)	4	
9 (E)	5 (16.7)	9 (30.0)	6 (20.0)	7 (23.3)	3 (10.0)	3	1
9 (C)	2 (3.2)	19 (30.6)	19 (30.6)	13 (21.0)	9 (14.5)	3	
10 (E)	0	6 (19.4)	8 (25.8)	4 (12.9)	13 (41.9)	4	
10(C)	2 (3.3)	3 (4.9)	16 (26.2)	14 (23.0)	26 (42.6)	4	1
11 (E)	4 (12.9)	11 (35.5)	11 (35.5)	2 (6.5)	3 (9.7)	3	
11 (C)	3 (4.8)	20 (32.3)	21 (33.9)	10 (16.1)	8 (12.9)	3	
12 (E)	6 (19.4)	7 (22.6)	10 (32.3)	5 (16.1)	3 (9.7)	3	
12 (C)	4 (6.6)	10 (16.4)	20 (32.8)	18 (29.5)	9 (14.8)	3	1
13 (E)	1 (3.2)	7 (22.6)	13 (41.9)	7 (22.6)	3 (9.7)	3	
13 (C)	0	9 (14.5)	15 (24.2)	24 (38.7)	14 (22.6)	4	
14 (E)	2 (6.5)	5 (16.1)	5 (16.1)	14 (45.2)	5 (16.1)	4	
14 (C)	2 (3.2)	9 (14.5)	16 (25.8)	20 (32.3)	15 (24.2)	4	
15 (E)	3 (9.7)	9 (29.0)	4 (12.9)	11 (35.5)	4 (12.9)	3	
15 (C)	5 (8.1)	14 (22.6)	20 (32.3)	14 (22.6)	9 (14.5)	3	
16 (E)	6 (19.4)	7 (22.6)	10 (32.3)	2 (6.5)	6 (19.4)	3	
16 (C)	8 (12.9)	12 (19.4)	15 (24.2)	14 (22.6)	13 (21.0)	3	



Table 2: Students enjoyment of different learning styles at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	1 (3.2)	3 (9.7)	5 (16.1)	6 (19.4)	16 (51.6)	5	
1 (C)	1 (1.6)	2 (3.2)	6 (9.7)	22 (35.5)	31 (50.0)	4.5	
2 (E)	1 (3.2)	9 (29.0)	10 (32.3)	9 (29.0)	2 (6.5)	3	
2 (C)	4 (6.5)	8 (12.9)	20 (32.3)	22 (35.5)	8 (12.9)	3	
3 (E)	4 (12.9)	3 (9.7)	9 (29.0)	10 (32.3)	5 (16.1)	3	
3 (C)	4 (6.5)	9 (14.5)	14 (22.6)	16 (25.8)	19 (30.6)	4	
4 (E)	4 (12.9)	7 (22.6)	12 (38.7)	4 (12.9)	4 (12.9)	3	
4 (C)	4 (6.5)	15 (24.2)	15 (24.2)	21 (33.9)	7 (11.3)	3	
5 (E)	3 (9.7)	9 (29.0)	8 (25.8)	6 (19.4)	5 (16.1)	3	
5 (C)	8 (13.1)	11 (18.0)	15 (24.2)	20 (32.8)	7 (11.5)	3	1
6 (E)	3 (9.7)	6 (19.4)	8 (25.8)	9 (29.0)	5 (16.1)	3	
6 (C)	3 (4.8)	12 (19.4)	21 (33.9)	15 (24.2)	11 (17.7)	3	
7 (E)	4 (12.9)	6 (19.4)	9 (29.0)	7 (22.6)	5 (16.1)	3	
7 (C)	8 (12.9)	8 (12.9)	21 (33.9)	18 (29.0)	7 (11.3)	3	
8 (E)	4 (12.9)	5 (16.1)	10 (32.3)	5 (16.1)	7 (22.6)	3	
8 (C)	6 (9.7)	9 (14.5)	11 (17.7)	12 (19.4)	24 (38.7)	4	
9 (E)	5 (16.1)	4 (12.9)	8 (25.8)	8 (25.8)	6 (19.4)	3	
9 (C)	3 (4.9)	8 (13.1)	18 (29.5)	20 (32.8)	12 (19.7)	4	1
10 (E)	2 (6.5)	3 (9.7)	10 (32.3)	12 (38.7)	4 (12.9)	4	
10 (C)	1 (1.6)	9 (14.8)	14 (23.0)	20 (32.8)	17 (27.9)	4	1
11 (E)	5 (16.1)	9 (29.0)	11 (35.5)	4 (12.9)	2 (6.5)	3	
11 (C)	4 (6.5)	14 (22.6)	23 (37.1)	13 (21.0)	8 (12.9)	3	
12 (E)	4 (12.9)	5 (16.1)	13 (41.9)	5 (16.1)	4 (12.9)	3	
12 (C)	2 (3.2)	11 (17.7)	20 (32.3)	19 (30.6)	10 (16.1)	3	
13 (E)	4 (13.3)	8 (26.7)	6 (20.0)	8 (26.7)	4 (13.3)	3	1
13 (C)	2 (3.3)	13 (21.3)	15 (24.6)	20 (32.8)	11 (18.0)	4	
14 (E)	4 (12.9)	3 (9.7)	13 (41.9)	9 (29.0)	2 (6.5)	3	
14 (C)	1 (1.6)	8 (13.1)	17 (27.9)	16 (26.2)	19 (31.1)	4	1
15 (E)	2 (6.5)	9 (29.0)	7 (22.6)	7 (22.6)	6 (19.4)	3	
15 (C)	5 (8.1)	11 (17.7)	17 (27.4)	22 (35.5)	7 (11.3)	3	
16 (E)	5 (16.1)	7 (22.6)	11 (35.5)	4 (12.9)	4 (12.9)	3	
16 (C)	6 (9.7)	13 (21.0)	16 (25.8)	14 (22.6)	13 (21.0)	3	



Table 3: Students enjoyment of different resources at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	5 (16.1)	2 (6.5)	10 (32.3)	9 (29.0)	5 (16.1)	3	
1 (C)	3 (4.8)	5 (8.1)	13 (21.0)	16 (25.8)	25 (40.3)	4	
2 (E)	6 (19.4)	6 (19.4)	8 (25.8)	10 (32.3)	1 (3.2)	3	
2 (C)	6 (9.7)	5 (8.1)	23 (37.1)	19 (30.6)	9 (14.5)	3	
3 (E)	4 (12.9)	2 (6.5)	5 (16.1)	10 (32.3)	10 (32.3)	4	
3 (C)	6 (9.8)	4 (6.6)	9 (14.8)	13 (21.3)	29 (47.5)	4	1
4 (E)	4 (12.9)	4 (12.9)	4 (12.9)	11 (35.5)	8 (25.8)	4	
4 (C)	3 (5.0)	7 (11.7)	7 (11.7)	17 (28.3)	26 (43.3)	4	1
5 (E)	8 (25.8)	4 (12.9)	6 (19.4)	9 (29.0)	4 (12.9)	3	
5 (C)	12 (19.4)	11 (17.7)	17 (27.4)	6 (9.7)	16 (25.8)	3	
6 (E)	2 (6.5)	5 (16.1)	3 (9.7)	10 (32.3)	11 (35.5)	4	
6 (C)	6 (9.8)	5 (8.2)	18 (29.5)	12 (19.7)	20 (32.8)	4	1
7 (E)	4 (12.9)	3 (9.7)	7 (22.6)	11 (35.5)	6 (19.4)	4	
7 (C)	6 (9.7)	12 (19.4)	12 (19.4)	18 (29.0)	14 (22.6)	4	
8 (E)	6 (19.4)	6 (19.4)	9 (29.0)	7 (22.6)	3 (9.7)	3	
8 (C)	9 (14.8)	9 (14.8)	20 (32.8)	9 (14.8)	14 (23.0)	3	1
9 (E)	7 (22.6)	5 (16.1)	10 (32.3)	4 (12.9)	5 (16.1)	3	

Table 4: Students description of their science teachers at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	3 (9.7)	3 (9.7)	1 (3.2)	6 (19.4)	18 (58.1)	5	
1 (C)	11 (17.7)	1 (1.6)	7 (11.3)	12 (19.4)	31 (50.0)	4.5	
2 (E)	0	0	0	6 (19.4)	18 (58.1)	5	
2 (C)	8 (13.3)	5 (8.3)	7 (11.7)	18 (30.0)	22 (36.7)	4	2
3 (E)	2 (6.5)	1 (3.2)	4 (12.9)	10 (32.3)	14 (45.2)	4	
3 (C)	9 (14.8)	3 (4.9)	10 (16.4)	16 (26.2)	23 (37.7)	4	1
4 (E)	2 (6.5)	2 (6.5)	6 (19.4)	10 (32.3)	11 (35.5)	4	
4 (C)	9 (14.8)	3 (4.9)	19 (31.1)	15 (24.6)	15 (24.6)	3	1
5 (E)	1 (3.2)	3 (9.7)	4 (12.9)	8 (25.8)	15 (48.4)	4	
5 (C)	8 (13.8)	3 (5.2)	12 (20.7)	12 (20.7)	23 (39.7)	4	4
6 (E)	0	5 (16.1)	7 (22.6)	7 (22.6)	12 (38.7)	4	
6 (C)	8 (13.6)	6 (10.2)	10 (16.9)	17 (28.8)	18 (30.5)	4	3
7 (E)	2 (6.5)	7 (22.6)	4 (12.9)	9 (29.0)	9 (29.0)	4	
7 (C)	7 (11.3)	11 (17.7)	12 (19.4)	11 (17.7)	21 (33.9)	4	
8 (E)	1 (3.2)	6 (19.4)	4 (12.9)	8 (25.8)	12 (38.7)	4	
8 (C)	8 (12.9)	3 (4.8)	14 (22.6)	18 (29.0)	19 (30.6)	4	
9 (E)	2 (6.5)	4 (12.9)	7 (22.6)	10 (32.3)	8 (25.8)	4	
9 (C)	14 (22.6)	7 (11.3)	13 (21.0)	12 (19.4)	16 (25.8)	3	

Table 5: Students enjoyment of science content at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	5 (16.1)	9 (29.0)	11 (35.5)	4 (12.9)	3	
1 (C)	0	3 (4.8)	18 (29.0)	27 (43.5)	14 (22.6)	4	

Table 6: Using different resources in science at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	4 (12.9)	3 (9.7)	6 (19.4)	6 (19.4)	12 (38.7)	4	
1 (C)	2 (3.2)	4 (6.5)	10 (16.1)	18 (29.0)	28 (45.2)	4	
2 (E)	18 (58.1)	5 (16.1)	4 (12.9)	2 (6.5)	2 (6.5)	1	
2 (C)	4 (6.5)	3 (4.8)	22 (35.5)	22(35.5)	11 (17.7)	4	
3 (E)	3 (9.7)	3 (9.7)	10 (32.3)	3 (9.7)	12 (38.7)	3	
3 (C)	4 (6.5)	4 (6.5)	10 (16.1)	12 (19.4)	32 (51.6)	5	
4 (E)	5 (16.1)	2 (6.5)	10 (32.3)	6 (19.4)	8 (25.8)	3	
4 (C)	2 (3.2)	6 (9.7)	12 (19.4)	18 (29.0)	24 (38.7)	4	
5 (E)	9 (29.0)	5 (16.1)	8 (25.8)	4 (12.9)	5 (16.1)	3	
5 (C)	10 (16.1)	11 (17.7)	15 (24.2)	12 (19.4)	14 (22.6)	3	
6 (E)	2 (6.5)	5 (16.1)	4 (12.9)	11 (35.5)	9 (29.0)	4	
6 (C)	6 (9.7)	7 (11.3)	18 (29.0)	15 (24.2)	16 (25.8)	3.5	
7 (E)	5 (16.1)	4 (12.9)	8 (25.8)	4 (12.9)	10 (32.3)	3	
7 (C)	8 (13.3)	9 (15.0)	13 (21.7)	19 (31.7)	11 (18.3)	3.5	2
8 (E)	9 (29.0)	8 (25.8)	5 (16.1)	6 (19.4)	3 (9.7)	2	
8 (C)	10 (16.1)	10 (16.1)	18 (29.0)	11 (17.7)	13 (21.0)	3	
9 (E)	10 (32.3)	6 (19.4)	6 (19.4)	5 (16.1)	4 (12.9)	2	

Table 7: Reasons that make science important at the time of the pre-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	1 (3.2)	2 (6.5)	3 (9.7)	4 (12.9)	21 (67.7)	5	
1 (C)	3 (4.8)	5 (8.1)	8 (12.9)	14 (22.6)	32 (51.6)	5	
2 (E)	0	2 (6.5)	4 (12.9)	10 (32.3)	15 (48.4)	4	
2 (C)	1 (1.6)	2 (3.2)	11 (17.7)	25 (40.3)	23 (37.1)	4	
3 (E)	2 (6.5)	4 (12.9)	6 (19.4)	4 (12.9)	15 (48.4)	4	
3 (C)	0	5 (8.1)	18 (29.0)	21 (33.9)	18 (29.0)	4	
4 (E)	0	2 (6.5)	6 (19.4)	10 (32.3)	13 (41.9)	4	
4 (C)	2 (3.2)	2 (3.2)	11 (17.7)	25 (40.3)	22 (35.5)	4	
5 (E)	2 (6.5)	2 (6.5)	5 (16.1)	9 (29.0)	13 (41.9)	4	
5 (C)	3 (4.8)	3 (4.8)	16 (25.8)	18 (29.0)	22 (35.5)	4	
6 (E)	2 (6.5)	2 (6.5)	5 (16.1)	8 (25.8)	14 (45.2)	4	
6 (C)	0	4 (6.5)	11 (71.7)	20 (32.3)	27 (43.5)	4	
7 (E)	4 (12.9)	4 (12.9)	5 (16.1)	7 (22.6)	11 (35.5)	4	
7 (C)	3 (4.8)	3 (4.8)	7 (11.3)	21 (33.9)	28 (45.2)	4	
8 (E)	9 (29.0)	3 (9.7)	5 (16.1)	6 (19.4)	8 (25.8)	3	
8 (C)	9 (14.5)	5 (8.1)	13 (21.0)	20 (32.3)	15 (24.2)	4	



**Appendix (15) Frequencies and Percentages of the Experimental and Control Groups at the Post-test**

**Table 1: Using different learning styles at the time of the post-test:  
Frequencies and percentages (%)**

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	1 (3.2)	2 (6.5)	3 (9.7)	25 (80.6)	5	
1 (C)	0	3 (4.8)	3 (4.8)	17 (27.4)	39 (62.9)	5	
2 (E)	7 (22.6)	8 (25.8)	8 (25.8)	5 (16.1)	3 (9.7)	3	
2 (C)	8 (12.9)	7 (11.3)	16 (25.8)	22 (35.5)	9 (14.5)	3.5	
3 (E)	4 (12.9)	3 (9.7)	12 (38.7)	7 (22.6)	5 (16.1)	3	
3 (C)	2 (3.3)	9 (15.0)	14 (23.3)	21 (35.0)	14 (23.3)	4	2
4 (E)	11 (35.5)	7 (22.6)	9 (29.0)	2 (6.5)	2 (6.5)	2	
4 (C)	14 (22.6)	17 (27.4)	15 (24.2)	11 (17.7)	5 (8.1)	2.5	
5 (E)	6 (19.4)	9 (29.0)	9 (29.0)	6 (19.4)	1 (3.2)	3	
5 (C)	10 (16.1)	14 (22.6)	21 (33.9)	10 (16.1)	7 (11.3)	3	
6 (E)	6 (19.4)	10 (32.3)	5 (16.1)	7 (22.6)	3 (9.7)	2	
6 (C)	8 (13.1)	14 (23.0)	25 (41.0)	10 (16.4)	4 (6.6)	3	1
7 (E)	11 (35.5)	7 (22.6)	11 (35.5)	1 (3.2)	1 (3.2)	2	
7 (C)	11 (18.0)	15 (24.6)	18 (29.5)	12 (19.7)	5 (8.2)	3	1
8 (E)	2 (6.5)	4 (12.9)	6 (19.4)	8 (25.8)	11 (35.5)	4	
8 (C)	16 (25.8)	5 (8.1)	10 (16.1)	12 (19.4)	19 (30.6)	3.5	
9 (E)	19 (61.3)	6 (19.4)	2 (6.5)	3 (9.7)	1 (3.2)	1	
9 (C)	12 (19.7)	18 (29.5)	17 (27.9)	8 (13.1)	6 (9.8)	3	1
10 (E)	1 (3.2)	0	9 (30.0)	7 (23.3)	13 (43.3)	4	1
10 (C)	3 (4.9)	3 (4.9)	5 (8.2)	27 (44.3)	23 (37.7)	4	1
11 (E)	11 (35.5)	8 (25.8)	6 (19.4)	5 (16.1)	1 (3.2)	2	
11 (C)	13 (21.0)	19 (30.6)	14 (22.6)	11 (17.7)	5 (8.1)	2	
12 (E)	10 (32.3)	9 (29.0)	6 (19.4)	5 (16.1)	1 (3.2)	2	
12 (C)	15 (24.6)	12 (19.7)	16 (26.2)	12 (19.7)	6 (9.8)	3	1
13 (E)	2 (6.5)	10 (32.3)	10 (32.3)	4 (12.9)	5 (16.1)	3	
13 (C)	5 (8.5)	7 (11.9)	21 (35.6)	17 (28.8)	9 (15.3)	3	3
14 (E)	5 (16.1)	9 (29.0)	8 (25.8)	6 (19.4)	3 (9.7)	3	
14 (C)	5 (8.3)	17 (28.3)	15 (25.0)	14 (23.3)	9 (15.0)	3	2
15 (E)	10 (32.3)	8 (25.8)	5 (16.1)	2 (6.5)	6 (19.4)	2	
15 (C)	9 (14.5)	10 (16.1)	13 (21.0)	22 (35.5)	8 (12.9)	3	
16 (E)	10 (32.3)	7 (22.6)	8 (25.8)	2 (6.5)	4 (12.9)	2	
16 (C)	15 (24.2)	12 (19.4)	22 (35.5)	7 (11.3)	6 (9.7)	3	



Table 2: Students enjoyment of different learning styles at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	5 (16.1)	1 (3.2)	5 (16.1)	20 (64.5)	5	
1 (C)	1 (1.6)	3 (4.8)	7 (11.3)	19 (30.6)	32 (51.6)	5	
2 (E)	6 (19.4)	4 (12.9)	8 (25.8)	8 (25.8)	5 (16.1)	3	
2 (C)	3 (4.9)	9 (14.8)	20 (32.8)	22 (36.1)	7 (11.5)	3	1
3 (E)	2 (6.5)	2 (6.5)	6 (19.4)	8 (25.8)	13 (41.9)	4	
3 (C)	1 (1.6)	7 (11.3)	12 (19.4)	27 (43.5)	15 (24.2)	4	
4 (E)	6 (19.4)	2 (6.5)	7 (22.6)	6 (19.4)	10 (32.3)	4	
4 (C)	5 (8.1)	11 (17.7)	24 (38.7)	14 (22.6)	8 (12.9)	3	
5 (E)	2 (6.5)	5 (16.1)	9 (29.0)	7 (22.6)	8 (25.8)	3	
5 (C)	4 (6.7)	10 (16.7)	18 (30.0)	17 (28.3)	11 (18.3)	3	2
6 (E)	6 (19.4)	3 (9.7)	7 (22.6)	10 (32.3)	5 (16.1)	3	
6 (C)	6 (9.8)	9 (14.8)	26 (42.6)	13 (21.3)	7 (11.5)	3	1
7 (E)	5 (16.1)	4 (12.9)	10 (32.3)	8 (22.6)	5 (16.1)	3	
7 (C)	9 (14.8)	11 (18.0)	17 (27.9)	17 (27.9)	7 (11.5)	3	1
8 (E)	2 (6.5)	1 (3.2)	6 (19.4)	6 (16.1)	17 (54.8)	5	
8 (C)	11 (17.7)	2 (3.2)	10 (16.1)	12 (19.4)	27 (43.5)	4	
9 (E)	10 (32.3)	6 (19.4)	1 (3.2)	10 (32.3)	4 (12.9)	2	
9 (C)	6 (9.7)	11 (17.7)	22 (35.5)	16 (25.8)	7 (11.3)	3	
10 (E)	1 (3.3)	1 (3.3)	6 (20.0)	9 (30.0)	13 (43.3)	4	1
10 (C)	1 (1.7)	3 (5.0)	15 (25.0)	23 (38.3)	18 (30.0)	4	2
11 (E)	6 (19.4)	7 (22.6)	8 (25.8)	5 (16.1)	5 (16.1)	3	
11 (C)	5 (8.1)	11 (17.7)	22 (35.5)	15 (24.2)	9 (14.5)	3	
12 (E)	4 (12.9)	7 (22.6)	7 (22.6)	6 (19.4)	7 (22.6)	3	
12 (C)	5 (8.1)	12 (19.4)	18 (29.0)	15 (24.2)	12 (19.4)	3	
13 (E)	7 (22.6)	2 (6.5)	9 (29.0)	6 (19.4)	7 (22.6)	3	
13 (C)	2 (3.2)	10 (16.1)	23 (37.1)	22 (35.5)	5 (8.1)	3	
14 (E)	4 (12.9)	5 (16.1)	5 (16.1)	10 (32.3)	7 (22.6)	4	
14 (C)	1 (1.6)	10 (16.1)	12 (19.4)	27 (43.5)	12 (19.4)	4	
15 (E)	4 (12.9)	6 (22.6)	7 (22.6)	10 (32.3)	3 (9.7)	3	
15 (C)	6 (9.7)	11 (17.7)	17 (27.4)	15 (24.2)	13 (21.0)	3	
16 (E)	7 (22.6)	4 (12.9)	7 (22.6)	7 (22.6)	6 (19.4)	3	
16 (C)	10 (16.1)	7 (11.3)	22 (35.5)	7 (11.3)	16 (25.8)	3	

Table 3: Students enjoyment of different resources at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	3 (9.7)	3 (9.7)	6 (19.4)	10 (32.3)	9 (29.0)	4	
1 (C)	3 (4.8)	5 (8.1)	13 (21.0)	21 (33.9)	20 (32.3)	4	
2 (E)	5 (16.1)	6 (19.4)	8 (25.8)	4 (12.9)	8 (25.8)	3	
2 (C)	3 (4.8)	11 (17.7)	24 (38.7)	12 (19.4)	12 (19.4)	3	
3 (E)	2 (6.5)	1 (3.2)	3 (9.7)	6 (19.4)	19 (61.3)	5	
3 (C)	5 (8.2)	2 (3.3)	5 (8.2)	11 (18.0)	38 (62.3)	5	1
4 (E)	4 (12.9)	1 (3.2)	3 (9.7)	7 (22.6)	16 (51.6)	5	
4 (C)	5 (8.1)	2 (3.2)	9 (14.5)	15 (24.2)	31 (50.0)	4.5	
5 (E)	9 (29.0)	3 (9.7)	5 (16.1)	5 (16.1)	9 (29.0)	3	
5 (C)	7 (11.3)	10 (16.1)	20 (32.3)	13 (21.0)	12 (19.4)	3	
6 (E)	4 (12.9)	2 (6.5)	5 (16.1)	6 (19.4)	14 (45.2)	4	
6 (C)	5 (8.1)	6 (9.7)	6 (9.7)	22 (35.5)	23 (37.1)	4	
7 (E)	1 (3.2)	5 (16.1)	4 (12.9)	7 (22.6)	14 (45.2)	4	
7 (C)	9 (14.5)	2 (3.2)	15 (24.2)	14 (22.6)	22 (35.5)	4	
8 (E)	6 (19.4)	6 (19.4)	6 (19.4)	4 (12.9)	9 (29.0)	3	
8 (C)	14 (23.0)	9 (14.8)	12 (19.7)	11 (18.0)	15 (24.6)	3	1
9 (E)	5 (16.1)	4 (12.9)	6 (19.4)	5 (16.1)	11 (35.5)	4	

Table 4: Students description of their science teachers at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	1 (3.2)	5 (16.1)	2 (6.5)	23 (74.2)	5	
1 (C)	3 (4.8)	3 (4.8)	5 (8.1)	13 (21.0)	38 (61.3)	5	
2 (E)	0	0	4 (12.9)	4 (12.9)	23 (74.2)	5	
2 (C)	4 (6.5)	4 (6.5)	6 (9.7)	16 (25.8)	32 (51.6)	5	
3 (E)	0	2 (6.5)	6 (19.4)	5 (16.1)	18 (58.1)	5	
3 (C)	3 (4.8)	1 (1.6)	11 (17.7)	17 (27.4)	30 (48.4)	4	
4 (E)	0	4 (12.9)	8 (25.8)	2 (6.5)	17 (54.8)	5	
4 (C)	4 (6.6)	8 (13.1)	9 (14.8)	19 (31.1)	21 (34.4)	4	1
5 (E)	1 (3.2)	0	6 (19.4)	6 (19.4)	18 (58.1)	5	
5 (C)	4 (6.5)	2 (3.2)	14 (22.6)	17 (27.4)	25 (40.3)	4	
6 (E)	1 (3.2)	3 (9.7)	9 (29.0)	2 (6.5)	16 (51.6)	5	
6 (C)	5 (8.2)	3 (4.9)	10 (16.4)	17 (27.9)	26 (42.6)	4	1
7 (E)	2 (6.5)	0	8 (25.8)	10 (32.3)	11 (35.5)	4	
7 (C)	5 (8.1)	3 (4.8)	7 (11.3)	19 (30.6)	28 (45.2)	4	
8 (E)	2 (6.5)	2 (6.5)	9 (29.0)	2 (6.5)	16 (51.6)	5	
8 (C)	5 (8.1)	2 (3.2)	17 (27.4)	16 (25.8)	22 (35.5)	4	
9 (E)	5 (16.1)	3 (9.7)	7 (22.6)	6 (19.4)	10 (32.3)	4	
9 (C)	8 (12.9)	5 (8.1)	16 (25.8)	16 (25.8)	17 (27.4)	4	



Table 5: Students enjoyment of science content at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	1 (3.2)	0	11 (35.5)	11 (35.5)	8 (25.8)	4	
1 (C)	0	2 (3.2)	22 (35.5)	25 (40.3)	13 (21.0)	4	

Table 6: Using different resources in science at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	11 (35.5)	1 (3.2)	8 (25.8)	3 (9.7)	8 (25.8)	3	
1 (C)	8 (12.9)	4 (6.5)	6 (9.7)	19 (30.6)	25 (40.3)	4	
2 (E)	18 (58.1)	4 (12.9)	4 (12.9)	3 (9.7)	2 (6.5)	1	
2 (C)	19 (30.6)	8 (12.9)	14 (22.6)	14 (22.6)	7 (11.3)	3	
3 (E)	3 (9.7)	0	6 (19.4)	12 (38.7)	10 (32.3)	4	
3 (C)	12 (19.4)	6 (9.7)	12 (19.4)	13 (21.0)	19 (30.6)	4	
4 (E)	8 (25.8)	0	5 (16.1)	11 (35.5)	7 (22.6)	4	
4 (C)	21 (33.9)	10 (16.1)	8 (12.9)	11 (17.7)	12 (19.4)	2.5	
5 (E)	17 (54.8)	5 (16.1)	5 (16.1)	1 (3.2)	3 (9.7)	1	
5 (C)	31 (50.0)	5 (8.1)	11 (17.7)	8 (12.9)	7 (11.3)	1.5	
6 (E)	5 (16.7)	2 (6.7)	4 (13.3)	11 (36.7)	8 (26.7)	4	1
6 (C)	11 (17.7)	9 (14.5)	10 (16.1)	12 (19.4)	20 (32.3)	4	
7 (E)	5 (16.1)	5 (16.1)	9 (29.0)	6 (19.4)	6 (19.4)	3	
7 (C)	12 (19.4)	4 (6.5)	17 (27.4)	10 (16.1)	19 (30.6)	3	
8 (E)	15 (48.4)	3 (9.7)	5 (16.1)	5 (16.1)	3 (9.7)	2	
8 (C)	20 (32.3)	6 (9.7)	12 (19.4)	11 (17.7)	13 (21.0)	3	
9 (E)	14 (45.2)	4 (12.9)	3 (9.7)	8 (25.8)	2 (6.5)	2	
9 (C)	31 (50.8)	11 (18.0)	3 (4.9)	9 (14.8)	7 (11.5)	1	1

Table 7: Reasons that make science important at the time of the post-test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	2 (6.5)	6 (19.4)	9 (29.0)	14 (45.2)	4	
1 (C)	0	5 (8.1)	6 (9.7)	19 (30.6)	32 (51.6)	5	
2 (E)	0	3 (9.7)	8 (25.8)	9 (29.0)	11 (35.5)	4	
2 (C)	1 (1.6)	1 (1.6)	13 (21.3)	27 (44.3)	19 (31.1)	4	1
3 (E)	1 (3.2)	2 (6.5)	7 (22.6)	10 (32.3)	11 (35.5)	4	
3 (C)	5 (8.1)	3 (4.8)	14 (22.6)	20 (32.3)	20 (32.3)	4	
4 (E)	1 (3.2)	1 (3.2)	9 (29.0)	9 (29.0)	11 (35.5)	4	
4 (C)	1 (1.6)	6 (9.8)	13 (21.3)	18 (29.5)	23 (37.7)	4	1
5 (E)	3 (9.7)	2 (6.5)	5 (16.1)	13 (41.9)	8 (25.8)	4	
5 (C)	2 (3.2)	3 (4.8)	16 (25.8)	20 (32.3)	21 (33.9)	4	
6 (E)	3 (9.7)	2 (6.5)	3 (9.7)	11 (35.5)	12 (38.7)	4	
6 (C)	1 (1.6)	6 (9.7)	14 (22.6)	21 (33.9)	20 (32.3)	4	
7 (E)	5 (16.1)	3 (9.7)	4 (12.9)	4 (12.9)	15 (48.4)	4	
7 (C)	7 (11.3)	9 (14.5)	7 (11.3)	15 (24.2)	24 (38.7)	4	
8 (E)	7 (22.6)	8 (25.8)	7 (22.6)	2 (6.5)	7 (22.6)	3	
8 (C)	9 (14.5)	13 (21.0)	17 (27.4)	13 (21.0)	10 (16.1)	3	



## Appendix (15) Frequencies and Percentages of the Experimental and Control Groups at the Postponed-test

Table 1: Using different learning styles at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	0	0	1 (3.2)	4 (12.9)	26 (83.9)	5	
1 (C)	1 (1.6)	0	7 (11.3)	19 (30.6)	35 (56.5)	5	
2 (E)	4 (12.9)	4 (12.9)	10 (32.3)	10 (32.3)	3 (9.7)	3	
2 (C)	9 (14.5)	9 (14.5)	14 (22.6)	20 (32.3)	10 (16.1)	3	
3 (E)	2 (6.5)	8 (25.8)	7 (22.6)	9 (29.0)	5 (16.1)	3	
3 (C)	4 (6.5)	9 (14.5)	18 (29.0)	16 (25.8)	15 (24.2)	3.5	
4 (E)	9 (30.0)	12 (40.0)	7 (23.3)	1 (3.3)	1 (3.3)	2	1
4 (C)	12 (19.4)	18 (29.0)	16 (25.8)	11 (17.7)	5 (8.1)	3	
5 (E)	4 (12.9)	12 (38.7)	6 (19.4)	8 (25.8)	1 (3.2)	2	
5 (C)	10 (16.1)	15 (24.2)	14 (22.6)	19 (30.6)	4 (6.5)	3	
6 (E)	7 (22.6)	9 (29.0)	9 (29.0)	5 (16.1)	1 (3.2)	2	
6 (C)	6 (10.2)	16 (27.1)	17 (28.8)	15 (25.4)	5 (8.5)	3	3
7 (E)	6 (19.4)	13 (41.9)	10 (32.3)	2 (6.5)	0	2	
7 (C)	14 (23.3)	11 (18.3)	17 (28.3)	12 (20.0)	6 (10.0)	3	2
8 (E)	1 (3.2)	6 (19.4)	12 (38.7)	6 (19.4)	6 (19.4)	3	
8 (C)	15 (24.2)	4 (6.5)	11 (17.7)	14 (22.6)	18 (29.0)	4	
9 (E)	21 (67.7)	5 (16.1)	3 (9.7)	2 (6.5)	0	1	
9 (C)	18 (29.0)	12 (19.4)	15 (24.2)	11 (17.7)	6 (9.7)	3	
10 (E)	2 (6.5)	1 (3.2)	5 (16.1)	9 (29.0)	14 (45.2)	4	
10 (C)	2 (3.3)	10 (16.4)	11 (18.0)	18 (29.5)	20 (32.8)	4	1
11 (E)	11 (35.5)	8 (25.8)	8 (25.8)	3 (9.7)	1 (3.2)	2	
11 (C)	19 (30.6)	17 (27.4)	12 (19.4)	11 (17.7)	3 (4.8)	2	
12 (E)	8 (25.8)	10 (32.3)	7 (22.6)	5 (16.1)	1 (3.2)	2	
12 (C)	12 (19.4)	11 (17.7)	18 (29.0)	15 (24.2)	6 (9.7)	3	
13 (E)	4 (12.9)	8 (25.8)	12 (38.7)	5 (16.1)	2 (6.5)	3	
13 (C)	4 (6.5)	17 (27.4)	24 (38.7)	13 (21.0)	4 (6.5)	3	
14 (E)	3 (9.7)	10 (32.3)	13 (41.9)	4 (12.9)	1 (3.2)	3	
14 (C)	5 (8.1)	9 (14.5)	18 (29.0)	24 (38.7)	6 (9.7)	3	
15 (E)	5 (16.1)	11 (35.5)	6 (19.4)	6 (19.4)	3 (9.7)	2	
15 (C)	15 (24.2)	14 (22.6)	13 (21.0)	16 (25.8)	4 (6.5)	3	
16 (E)	8 (25.8)	12 (38.7)	8 (25.8)	1 (3.2)	2 (6.5)	2	
16 (C)	13 (21.0)	15 (24.2)	17 (27.4)	15 (24.2)	2 (3.2)	3	

Table 2: Students enjoyment of different learning styles at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	1 (3.2)	4 (12.9)	2 (6.5)	6 (19.4)	18 (58.1)	5	
1 (C)	1 (1.6)	3 (4.8)	8 (12.9)	24 (38.7)	26 (41.9)	4	
2 (E)	3 (9.7)	4 (19.4)	7 (22.6)	13 (41.9)	2 (6.5)	3	
2 (C)	6 (9.7)	4 (6.5)	15 (24.2)	26 (41.9)	11 (17.7)	4	
3 (E)	2 (6.5)	5 (16.1)	8 (25.8)	10 (32.3)	6 (19.4)	4	
3 (C)	5 (8.1)	7 (11.3)	17 (27.4)	22 (35.5)	11 (17.7)	4	
4 (E)	4 (12.9)	6 (19.4)	11 (35.5)	6 (19.4)	4 (12.9)	3	
4 (C)	8 (12.9)	12 (19.4)	17 (27.4)	19 (30.6)	6 (9.7)	3	
5 (E)	3 (9.7)	9 (29.0)	7 (22.6)	10 (32.3)	2 (6.5)	3	
5 (C)	6 (9.8)	14 (23.0)	15 (24.6)	21 (34.4)	5 (8.2)	3	1
6 (E)	4 (13.3)	4 (13.3)	11 (36.7)	7 (23.3)	4 (13.3)	3	1
6 (C)	7 (11.3)	12 (19.4)	19 (30.6)	20 (32.3)	4 (6.5)	3	
7 (E)	6 (19.4)	5 (16.1)	10 (32.3)	7 (22.6)	3 (9.7)	3	
7 (C)	8 (12.9)	13 (21.0)	23 (37.1)	11 (17.7)	7 (11.3)	3	
8 (E)	5 (16.1)	5 (16.1)	3 (9.7)	8 (25.8)	10 (32.3)	4	
8 (C)	7 (11.3)	6 (9.7)	9 (14.5)	13 (21.0)	27 (43.5)	4	
9 (E)	8 (25.8)	9 (29.0)	5 (16.1)	4 (12.9)	5 (16.1)	2	
9 (C)	8 (12.9)	5 (8.1)	23 (37.1)	18 (29.0)	8 (12.9)	3	
10 (E)	4 (12.9)	6 (19.4)	4 (12.9)	6 (19.4)	11 (35.5)	4	
10 (C)	3 (4.8)	8 (12.9)	14 (22.6)	19 (30.6)	18 (29.0)	4	
11 (E)	6 (19.4)	8 (25.8)	8 (25.8)	7 (22.6)	2 (6.5)	3	
11 (C)	14 (23.7)	10 (16.9)	16 (27.1)	11 (18.6)	8 (13.6)	3	3
12 (E)	6 (20.0)	5 (16.7)	6 (20.0)	11 (36.7)	2 (6.7)	3	1
12 (C)	9 (14.5)	11 (17.7)	16 (25.8)	22 (35.5)	4 (6.5)	3	
13 (E)	5 (16.1)	5 (16.1)	12 (38.7)	8 (25.8)	1 (3.2)	3	
13 (C)	7 (11.3)	15 (24.2)	21 (33.9)	11 (17.7)	8 (12.9)	3	
14 (E)	4 (13.3)	4 (13.3)	10 (33.3)	7 (23.3)	5 (16.7)	3	1
14 (C)	4 (6.6)	12 (19.7)	16 (26.2)	23 (37.7)	6 (9.8)	3	1
15 (E)	5 (16.1)	10 (32.3)	7 (22.6)	7 (22.6)	2 (6.5)	3	
15 (C)	16 (25.8)	14 (22.6)	11 (17.7)	12 (19.4)	9 (14.5)	3	
16 (E)	4 (12.9)	5 (16.1)	9 (29.0)	10 (32.3)	3 (9.7)	3	
16 (C)	11 (17.7)	13 (21.0)	18 (29.0)	16 (25.8)	4 (6.5)	3	

Table 3: Students enjoyment of different resources at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	3 (9.7)	1 (3.2)	7 (22.6)	7 (22.6)	13 (41.9)	4	
1 (C)	4 (6.5)	8 (12.9)	14 (22.6)	17 (27.4)	19 (30.6)	4	
2 (E)	1 (3.3)	5 (16.7)	8 (26.7)	11 (36.7)	5 (16.7)	4	1
2 (C)	10 (16.1)	8 (12.9)	16 (25.8)	16 (25.8)	12 (19.4)	3	
3 (E)	3 (9.7)	0	6 (19.4)	5 (16.1)	17 (54.8)	5	
3 (C)	6 (9.8)	5 (8.2)	4 (6.6)	9 (14.8)	37 (60.7)	5	1
4 (E)	2 (6.5)	2 (6.5)	4 (12.9)	9 (29.0)	14 (45.2)	4	
4 (C)	6 (9.7)	1 (1.6)	17 (27.4)	12 (19.4)	26 (41.9)	4	
5 (E)	5 (16.7)	1 (3.3)	10 (33.3)	6 (20.0)	8 (26.7)	3	1
5 (C)	10 (16.1)	7 (11.3)	19 (30.6)	9 (14.5)	17 (27.4)	3	
6 (E)	5 (16.1)	1 (3.2)	2 (6.5)	10 (32.3)	13 (41.9)	4	
6 (C)	5 (8.1)	8 (12.9)	13 (21.0)	12 (19.4)	24 (38.7)	4	
7 (E)	5 (16.1)	1 (3.2)	6 (19.4)	9 (29.0)	10 (32.3)	4	
7 (C)	4 (6.5)	11 (17.7)	12 (19.4)	15 (24.2)	20 (32.3)	4	
8 (E)	6 (19.4)	1 (3.2)	7 (22.6)	8 (25.8)	9 (29.0)	4	
8 (C)	11 (17.7)	9 (14.5)	11 (17.7)	16 (25.8)	15 (24.2)	3.5	
9 (E)	4 (12.9)	7 (22.6)	3 (9.7)	6 (19.4)	11 (35.5)	4	
9 (C)	7 (11.3)	10 (16.1)	21 (33.9)	9 (14.5)	15 (24.2)	3	



Table 4: Students description of their science teachers at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	2 (6.5)	2 (6.5)	3 (9.7)	4 (12.9)	20 (64.5)	5	
1 (C)	5 (8.1)	3 (4.8)	12 (19.4)	8 (12.9)	34 (54.8)	5	
2 (E)	0	3 (9.7)	2 (6.5)	8 (25.8)	18 (58.1)	5	
2 (C)	4 (6.6)	3 (4.9)	10 (16.4)	12 (19.7)	32 (52.5)	5	1
3 (E)	2 (6.5)	2 (6.5)	3 (9.7)	4 (12.9)	20 (64.5)	5	
3 (C)	5 (8.1)	6 (9.7)	10 (16.1)	11 (17.7)	30 (48.4)	4	
4 (E)	1 (3.2)	4 (12.9)	6 (19.4)	4 (12.9)	16 (51.6)	5	
4 (C)	7 (11.5)	4 (6.6)	14 (23.0)	13 (21.3)	23 (37.7)	4	1
5 (E)	4 (12.9)	0	5 (16.1)	10 (32.3)	12 (38.7)	4	
5 (C)	9 (14.8)	1 (1.6)	7 (11.5)	15 (24.6)	29 (47.5)	4	1
6 (E)	0	4 (12.9)	7 (22.6)	6 (19.4)	14 (45.2)	4	
6 (C)	6 (9.7)	5 (8.1)	9 (14.5)	14 (22.6)	28 (45.2)	4	
7 (E)	4 (12.9)	1 (3.2)	5 (16.1)	8 (25.8)	13 (41.9)	4	
7 (C)	7 (11.3)	4 (6.5)	12 (19.4)	14 (22.6)	25 (40.3)	4	
8 (E)	2 (6.5)	1 (3.2)	5 (16.1)	6 (19.4)	17 (54.8)	5	
8 (C)	6 (9.7)	3 (4.8)	16 (25.8)	12 (19.4)	25 (40.3)	4	
9 (E)	3 (9.7)	6 (19.4)	7 (22.6)	8 (25.8)	7 (22.6)	3	
9 (C)	8 (12.9)	3 (4.8)	16 (25.8)	16 (25.8)	19 (30.6)	4	

Table 5: Students enjoyment of science content at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	3 (9.7)	4 (12.9)	8 (25.8)	10 (32.3)	6 (19.4)	4	
1 (C)	3 (4.8)	2 (3.2)	14 (22.6)	29 (46.8)	14 (22.6)	4	

Table 6: Using different resources in science at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	6 (19.4)	3 (9.7)	4 (12.9)	10 (32.3)	8 (25.8)	4	
1 (C)	6 (9.7)	4 (6.5)	10 (16.1)	18 (29.0)	24 (38.7)	4	
2 (E)	12 (38.7)	6 (19.4)	6 (19.4)	5 (16.1)	2 (6.5)	2	
2 (C)	22 (35.5)	8 (12.9)	19 (30.6)	9 (14.5)	4 (6.5)	3	
3 (E)	2 (6.7)	3 (10.0)	5 (16.7)	8 (26.7)	12 (40.0)	4	
3 (C)	5 (8.2)	5 (8.2)	16 (26.2)	15 (24.6)	20 (32.8)	4	1
4 (E)	4 (12.9)	3 (9.7)	3 (9.7)	7 (22.6)	14 (45.2)	4	
4 (C)	8 (12.9)	6 (9.7)	16 (25.8)	13 (21.0)	19 (30.6)	4	
5 (E)	10 (32.3)	4 (12.9)	8 (25.8)	3 (9.7)	6 (19.4)	3	
5 (C)	13 (21.0)	15 (24.2)	9 (14.5)	12 (19.4)	13 (21.0)	3	
6 (E)	3 (9.7)	3 (9.7)	3 (9.7)	7 (22.6)	15 (48.4)	4	
6 (C)	5 (8.1)	4 (6.5)	12 (19.4)	21 (33.9)	20 (32.3)	4	
7 (E)	0	5 (16.1)	9 (29.0)	12 (38.7)	5 (16.1)	4	
7 (C)	5 (8.1)	7 (11.3)	15 (24.2)	21 (33.9)	14 (22.6)	4	
8 (E)	6 (19.4)	9 (29.0)	5 (16.1)	7 (22.6)	4 (12.9)	3	
8 (C)	20 (32.3)	10 (16.1)	14 (22.6)	11 (17.7)	7 (11.3)	3	
9 (E)	6 (19.4)	10 (32.3)	5 (16.1)	3 (9.7)	7 (22.6)	2	
9 (C)	18 (19.0)	9 (14.5)	14 (22.6)	11 (17.7)	10 (16.1)	3	



Table 7: Reasons that make science important at the time of the postponed test:  
Frequencies and percentages (%)

Items	Hardly at all	A little	Reasonably	A lot	Very much	Median	Missing
1 (E)	1 (3.2)	3 (9.7)	7 (22.6)	5 (16.1)	15 (48.4)	4	
1 (C)	1 (1.6)	6 (9.7)	8 (12.9)	19 (30.6)	28 (45.2)	4	
2 (E)	1 (3.2)	2 (6.5)	2 (6.5)	17 (54.8)	9 (29.0)	4	
2 (C)	0	3 (4.8)	11 (17.7)	30 (48.4)	18 (29.0)	4	
3 (E)	1 (3.2)	3 (9.7)	10 (32.3)	7 (22.6)	10 (32.3)	4	
3 (C)	4 (6.5)	7 (11.3)	18 (29.0)	19 (30.6)	14 (22.6)	4	
4 (E)	0	2 (6.5)	8 (25.8)	8 (25.8)	13 (41.9)	4	
4 (C)	2 (3.2)	10 (16.1)	9 (14.5)	22 (35.5)	19 (30.6)	4	
5 (E)	0	3 (9.7)	6 (19.4)	11 (35.5)	11 (35.5)	4	
5 (C)	1 (1.6)	2 (3.2)	15 (24.2)	20 (32.3)	24 (38.7)	4	
6 (E)	0	4 (12.9)	6 (19.4)	12 (38.7)	9 (29.0)	4	
6 (C)	2 (3.2)	4 (6.5)	10 (16.1)	25 (40.3)	21 (33.9)	4	
7 (E)	3 (9.7)	5 (16.1)	2 (6.5)	11 (35.5)	10 (32.3)	4	
7 (C)	3 (4.8)	6 (9.7)	13 (21.0)	14 (22.6)	26 (41.9)	4	
8 (E)	4 (12.9)	5 (16.1)	7 (22.6)	12 (38.7)	3 (9.7)	3	
8 (C)	10 (16.1)	8 (12.9)	11 (17.7)	23 (37.1)	10 (16.1)	4	

## Appendix (16) Correlation Coefficient between Different Variables that Related to History and Geography (Survey)

Table 1: the Correlation Coefficient between using different learning styles in History and Geography

Items	Correlation Coefficient	Significance	N
Teachers talks/lectures	.5911	<.01	349
Students make generalisation	.4107	<.01	349
Students ask questions	.5290	<.01	345
Students present work to the group	.5158	<.01	338
Students listen to others presentation	.5479	<.01	344
Students make interpretation	.4639	<.01	345
Students formulate hypothesis	.4678	<.01	336
Watch a video or listen to a tape and make notes	.6798	<.01	346
Discussion in small group	.6118	<.01	340
Class discussion led by teacher	.5103	<.01	334
Students derive material from many sources to work on a given problem, investigation or topic	.4607	<.01	345
Students organise an investigation on a given topic or problem	.5272	<.01	344
Students infer from given information	.5279	<.01	333
Students draw conclusions	.5577	<.01	336
Students distinguish between strong and weak arguments	.6742	<.01	342
Students identify the problem and devise ways of investigating it	.5618	<.01	345

Table 2: The Correlation Coefficient between students enjoyment of using different learning styles in History and Geography

Items	Correlation Coefficient	Significance	N
Teachers talks/lectures	.5891	<.01	348
Students make generalisation	.4256	<.01	349
Students ask questions	.5344	<.01	346
Students present work to the group	.5162	<.01	335
Students listen to others presentation	.5382	<.01	342
Students make interpretation	.5459	<.01	345
Students formulate hypothesis	.4981	<.01	336
Watch a video or listen to a tape and make notes	.5640	<.01	344
Discussion in small group	.4950	<.01	343
Class discussion led by teacher	.5268	<.01	341
Students derive material from many sources to work on a given problem, investigation or topic	.4460	<.01	345
Students organise an investigation on a given topic or problem	.4445	<.01	344
Students infer from given information	.5067	<.01	335
Students draw conclusions	.5918	<.01	338
Students distinguish between strong and weak arguments	.5608	<.01	348
Students identify the problem and devise ways of investigating it	.5031	<.01	349

Table 3: The Correlation Coefficient between students enjoyment in History and Geography

Items	Correlation Coefficient	Significance	N
Books	.6157	<.01	347
Documents	.5695	<.01	342
Video	.6554	<.01	349
TV	.7070	<.01	346
Audio Cassette	.6336	<.01	342
Pictures	.5612	<.01	343
Maps	.5775	<.01	345
Transparencies	.6016	<.01	350



Table 4: The Correlation Coefficient between students description of their teacher in History and Geography

Items	Correlation Coefficient	Significance	N
Helpful	.4689	<.01	342
Careful	.4576	<.01	346
Co-operative	.4320	<.01	346
Flexible	.4412	<.01	341
Responsive	.4633	<.01	341
Strong Direction	.4086	<.01	344
Friendly	.4723	<.01	342
Enthusiastic	.4283	<.01	343
Amenable	.4651	<.01	344

Table 5: Students enjoyment of History and Geography

Items	Correlation Coefficient	Significance	N
Students enjoyment of History and Geography	.5401	<.01	347

Table 6: The Correlation Coefficient between using different resources in History and Geography

Items	Correlation Coefficient	Significance	N
Books	.7523	<.01	348
Documents	.7514	<.01	346
Video	.8338	<.01	345
TV	.8775	<.01	345
Audio Cassette	.8522	<.01	343
Pictures	.6917	<.01	340
Maps	.5746	<.01	339
Transparencies	.8048	<.01	347

Table 7: The Correlation Coefficient between the reasons that make History and Geography important

Items	Correlation Coefficient	Significance	N
To get good jobs	.7100	<.01	347

## Appendix (16) Correlation Coefficient between Different Variables that Related to History and Science (Survey)

Table 1: The Correlation Coefficient between using different learning styles in History and Science

Items	Correlation Coefficient	Significance	N
Teachers talks/lectures	.4361	<.01	350
Students make generalisation	.4167	<.01	345
Students ask questions	.3997	<.01	339
Students present work to the group	.4121	<.01	337
Students listen to others presentation	.3941	<.01	342
Students make interpretation	.4267	<.01	347
Students formulate hypothesis	.4107	<.01	329
Watch a video or listen to a tape and make notes	.3175	<.01	347
Discussion in small group	.5129	<.01	346
Class discussion led by teacher	.4292	<.01	334
Students derive material from many sources to work on a given problem, investigation or topic	.3844	<.01	345
Students organise an investigation on a given topic or problem	.3552	<.01	343
Students infer from given information	.3702	<.01	332
Students draw conclusions	.4523	<.01	332
Students distinguish between strong and weak arguments	.5701	<.01	341
Students identify the problem and devise ways of investigating it	.5441	<.01	345

Table 2: The Correlation Coefficient between students enjoyment of using different learning styles in History and Science

Items	Correlation Coefficient	Significance	N
Teachers talks/lectures	.5337	<.01	349
Students make generalisation	.4216	<.01	348
Students ask questions	.4076	<.01	348
Students present work to the group	.4463	<.01	339
Students listen to others presentation	.5571	<.01	343
Students make interpretation	.4625	<.01	343
Students formulate hypothesis	.5001	<.01	335
Watch a video or listen to a tape and make notes	.4931	<.01	344
Discussion in small group	.4173	<.01	343
Class discussion led by teacher	.5377	<.01	339
Students derive material from many sources to work on a given problem, investigation or topic	.4501	<.01	344
Students organise an investigation on a given topic or problem	.4322	<.01	345
Students infer from given information	.4194	<.01	346
Students draw conclusions	.5231	<.01	337
Students distinguish between strong and weak arguments	.5235	<.01	348
Students identify the problem and devise ways of investigating it	.5076	<.01	350

Table 3: The Correlation Coefficient between students enjoyment in History and Science

Items	Correlation Coefficient	Significance	N
Books	.4472	<.01	347
Documents	.4375	<.01	344
Video	.5100	<.01	347
TV	.5299	<.01	345
Audio Cassette	.5877	<.01	342
Pictures	.5713	<.01	346
Maps	.3888	<.01	345
Transparencies	.4939	<.01	349



Table 4: The Correlation Coefficient between students description of their teacher in History and Science

Items	Correlation Coefficient	Significance	N
Helpful	.3586	<.01	341
Careful	.3770	<.01	344
Co-operative	.3091	<.01	342
Flexible	.2759	<.01	338
Responsive	.3495	<.01	342
Strong Direction	.3221	<.01	342
Friendly	.3167	<.01	340
Enthusiastic	.3467	<.01	342
Amenable	.4479	<.01	342

Table 5: Students enjoyment of History and Science

Items	Correlation Coefficient	Significance	N
Students enjoyment of History and Science	.1836	<.01	347

Table 6: The Correlation Coefficient between using different resources in History and Science

Items	Correlation Coefficient	Significance	N
Books	.6717	<.01	351
Documents	.6747	<.01	351
Video	.6127	<.01	345
TV	.6462	<.01	346
Audio Cassette	.7353	<.01	344
Pictures	.5555	<.01	347
Maps	.4080	<.01	339
Transparencies	.6387	<.01	349

Table 7: The Correlation Coefficient between the reasons that make History and Science important

Items	Correlation Coefficient	Significance	N
To get good jobs	.4150	<.01	346

## Appendix (16) Correlation Coefficient between Different Variables that Related to Geography and Science

Table 1: The Correlation Coefficient between students enjoyment in Geography and Science

Items	Correlation Coefficient	Significance	N
Books	.5564	<.01	351
Documents	.5678	<.01	343
Video	.6398	<.01	346
TV	.6328	<.01	346
Audio Cassette	.6532	<.01	347
Pictures	.5641	<.01	344
Maps	.4529	<.01	347
Transparencies	.6173	<.01	350

Table 2 : The Correlation Coefficient between students description of their teacher in Geography and Science

Items	Correlation Coefficient	Significance	N
Helpful	.4015	<.01	342
Careful	.3444	<.01	343
Co-operative	.4108	<.01	337
Flexible	.3449	<.01	340
Responsive	.4314	<.01	341
Strong Direction	.3376	<.01	340
Friendly	.2242	<.01	339
Enthusiastic	.3515	<.01	342
Amenable	.3772	<.01	341

Table 3: Students enjoyment of Geography and Science

Items	Correlation Coefficient	Significance	N
Students enjoyment of Geography and Science	.2950	<.01	348

Table 4: The Correlation Coefficient between using different resources in Geography and Science

Items	Correlation Coefficient	Significance	N
Books	.7430	<.01	348
Documents	.6653	<.01	346
Video	.6509	<.01	345
TV	.6794	<.01	344
Audio Cassette	.7707	<.01	340
Pictures	.5840	<.01	343
Maps	.4004	<.01	342
Transparencies	.6254	<.01	347

Table 5: The Correlation Coefficient between the reasons that make Geography and Science important

Items	Correlation Coefficient	Significance	N
To get good jobs	.5209	<.01	348
To get by in life	.5637	<.01	347
For enjoyment	.5303	<.01	346
To gain qualifications	.4889	<.01	346
To gain social status	.5353	<.01	347
To take part in cultural life	.5709	<.01	349
To act on parental advice	.7909	<.01	348
To act on friends advice	.7196	<.01	350



استبانة  
عن  
اتجاهات الطلاب نحو مادة  
التاريخ  
في  
الصف الأول الثانوي

إعداد  
مبارك سميد حمدان الشهراني  
١٤١٤ هـ

## "إتجاهات الطلاب نحو مادة التاريخ في الصف الأول الثانوي"

عزيزي الطالب:

إنني أحد مبعوثي جامعة الملك سعود للحصول على الدكتوراه من جامعة درم في المملكة المتحدة، وتمثل هذه الإستهانة جزءاً من دراسته وقد صممت للتعرف على آرائك حول بعض الإتجاهات السائدة في تدريس التاريخ في الصف الأول الثانوي، والتعرف أيضاً على إتجاهاتك نحو مادة التاريخ، وتتضمن مجموعة من العبارات التي أعدها الباحث حول تدريس مادة التاريخ في الصف الأول الثانوي من حيث أساليب التدريس، ومدرس التاريخ، ومقارنة إتجاهات الطالب نحو هذه المادة وبعض المواد الأخرى كالجغرافيا والعلوم. ولن تكون هنالك إجابات "صحيحة" أو "خاطئة" في هذه الإستهانة. أما تعليمات الإجابة على الأسئلة فهي موضحة لكل سؤال. كذلك فقد وضع الباحث مقياساً متدرجاً يمثل درجة وصفاً توافر كل عبارة من عبارات الاستهانة وذلك على النحو التالي:

بعض العبارات تكون إجابتها كالتالي ( كثير جداً، كثير، متوسط، قليل، ليس على الإطلاق).

وبعضها تكون الإجابة عليه مثلاً ( مهم جداً، مهم، قليل الأهمية، قليل الأهمية جداً، ليس على الإطلاق).

والبعض الآخر تكون إجابته مثلاً ( صعب جداً، صعب، أحياناً سهل/صعب، سهل، سهل جداً).

أما بعض العبارات فقد وضعت لها درجات ( ١، ٢، ٣، ٤، ٥)، وبعض العبارات تكون الإجابة عليها بكلمة (نعم أو لا)

والمطلوب منك أن تضع إشارة ( ✓ ) في أحد المربعات أمام العبارة الموجودة في السؤال كما في المثال التالي:

إلى أي مدى يكون حبك للأساليب التدريسية التالية؟ كثير جداً كثير متوسط قليل ليس على الإطلاق

			✓	
		✓		

• يشرح/ يحاضر المدرس.

• يستخلص الطلاب النتائج.

أما إذا كان لديك بعض الآراء والمقترحات أو بعض الملاحظات فيرجى منك كتابتها في الجزء الخاص بذلك في نهاية بعض الأسئلة أو في آخر صفحة من الاستهانة.

اقرأ كل التعليمات بدقة وحرص.

لا تحتاج إلى كتابة اسمك على هذه الإستهانة، حيث ستكون كل المعلومات سرية، وتستخدم في أغراض البحث فقط. أرجو أن تكون إجاباتك على هذه الأسئلة صادقة و أمينة . علماً بأن تعاونك مع الباحث في الاهتمام بالإجابة عن الاستهانة سيساعده في الوصول إلى نتائج حسنة ومفيدة إن شاء الله.

اشكرك على حسن تعاونك في الإجابة على هذه الأسئلة . وأرجوا التكرم بإعادتها إلى الباحث في فترة لا تتجاوز أسبوعين من تاريخ استلامها وذلك على العنوان التالي:

أبها/ كلية التربية/ قسم المناهج وطرق التدريس

مع الشكر والتقدير لاهتمامك.

ص.ب ١٥٧

مبارك سعيد حمدان الشهراني

طالب دراسات عليا



عزيزي الطالب:

هنا شرح مبسط لبعض العبارات الواردة في هذه الإمتبانه لتكون واضحة ومفهومة من جانبك على النحو التالي:

- يصوغ الطالب عموميات. تعني أن يصل الطالب إلى قاعدة عامة أو حقيقة أو مبدأ.
- يصوغ الطالب الفرضيات. تعني أن يصوغ الطالب بأسلوبه إجابات مؤقتة للتساؤل المطروح وتبدو كحلول ولكنها ليست نهائية.
- يميز الطالب بين المناقشات الضعيفة والقوية. تعني أن يكون الطالب قادرا على الحكم على مدى قوة وضعف المناقشات الواردة في البيانات ومدى ارتباطها ودعمها من عدمه.



--

(١) رقم الاستبانة . دعه خالياً من فضلك

(٢) توزيع المدارس . ضع إشارة في أحد المربعات فقط :

مدارس في المدن

مدارس في القرى


(٣) مهنة الأب . ضع إشارة في أحد المربعات فقط :

مدرس

موظف

بائع

عامل يدوي

رجل أعمال

عمل زراعي

عسكري

طبيب

أخرى

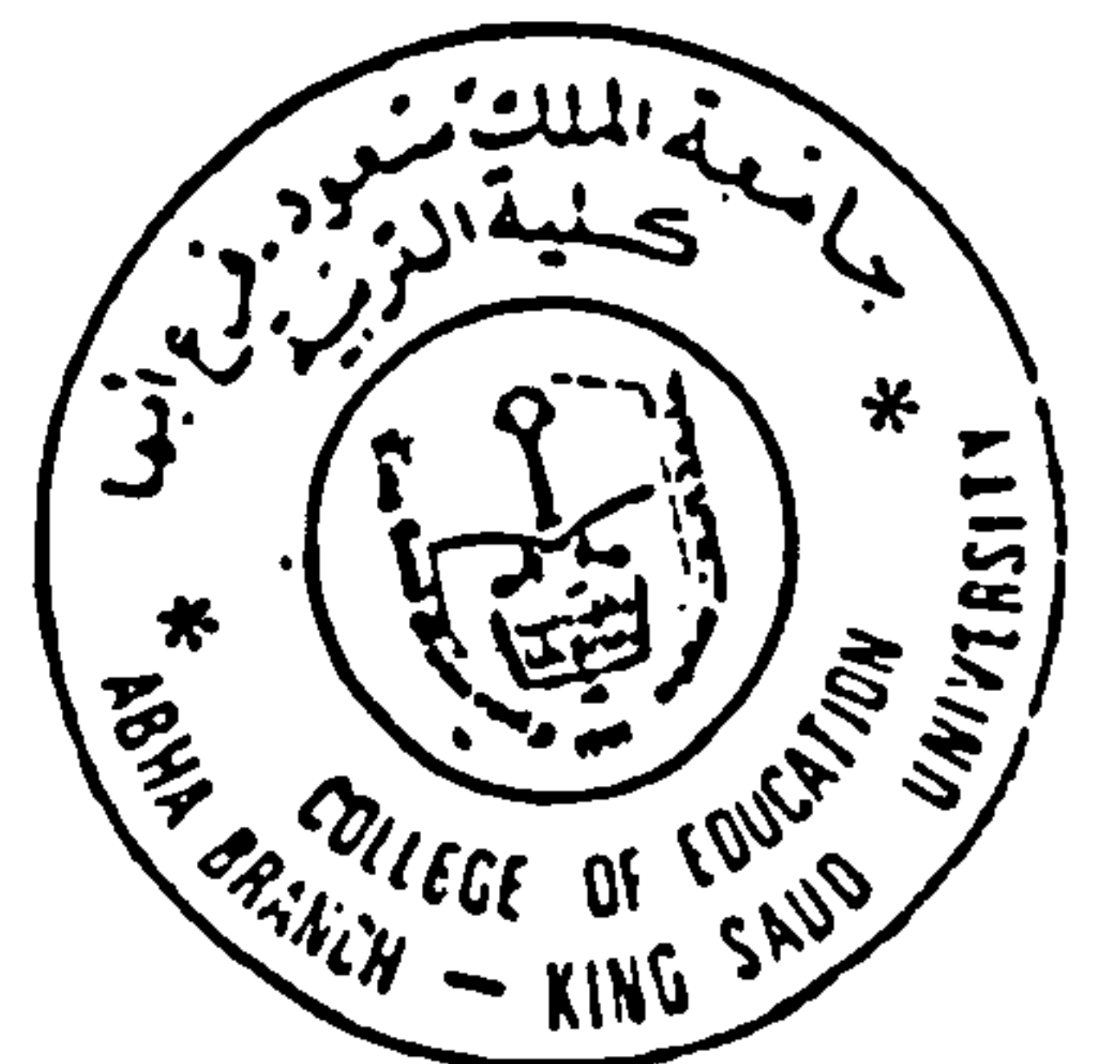

(٤) مهنة الأم . ضع إشارة في أحد المربعات فقط :

ربة بيت

معلمة

ممرضة

أخرى

(٥) ما هو تخصصك المرغوب في المدرسة ؟

ضع إشارة في أكثر من مربع إذا كنت ترغب ذلك


الدراسات الإسلامية

الدراسات التربوية

الدراسات العلمية

الدراسات الأدبية

الدراسات الإنسانية

اللغويات

(٦) ضع إشارة في المربع تبين تقديراتك في المواد التالية في السنة الماضية :

ممتاز ، جيد جداً ، جيد ، مقبول ، ضعيف . ضع إشارة في مربع واحد فقط لكل مادة .

ممتاز جيد جداً جيد مقبول ضعيف


التاريخ

الجغرافيا

العلوم

(٧) ضع أرقاماً تظهر كم عدد الساعات التي تقضيها

في دراسة المواد التالية في المنزل أكتب أرقاماً صحيحة .

٨	٧	٦	٥	٤	٣	٢	١	
								التاريخ
								جغرافيا
								علوم



ضع إشارة في مربع واحد فقط لكل أسلوب .

كثير جدا   كثير   متوسط   قليل   ليس على الإطلاق

[illegible]

يشرح / يحاضر المدرس .

يُصَيِّغُ الطَّلَابُ عُمُومِيَّاتَ .

يطرح الطلاب أسئلة .

يقدم الطالب عمل إلى المجموعة .

يستمع الطلاب إلى تقديم الطلاب الآخرين .

يقوم الطلاب بالتفسير .

**يصيغ الطلاب الفرضيات .**

**يشاهد الطلاب الفيديو أو يستمعون إلى**

**شریط ویسجلون ملاحظات .**

**يقوم الطلاب بالمناقشة فى مجموعات صغيرة .**

## يقود المدرس مناقشة الفصل .

**يشتق الطلاب أداة من مصادر متعددة للعمل**

**وبحث المشكلة المقدمة أو الموضوع .**

**ينظم الطلاب بحث في المشكلة المقدمة أو الموضوع .**

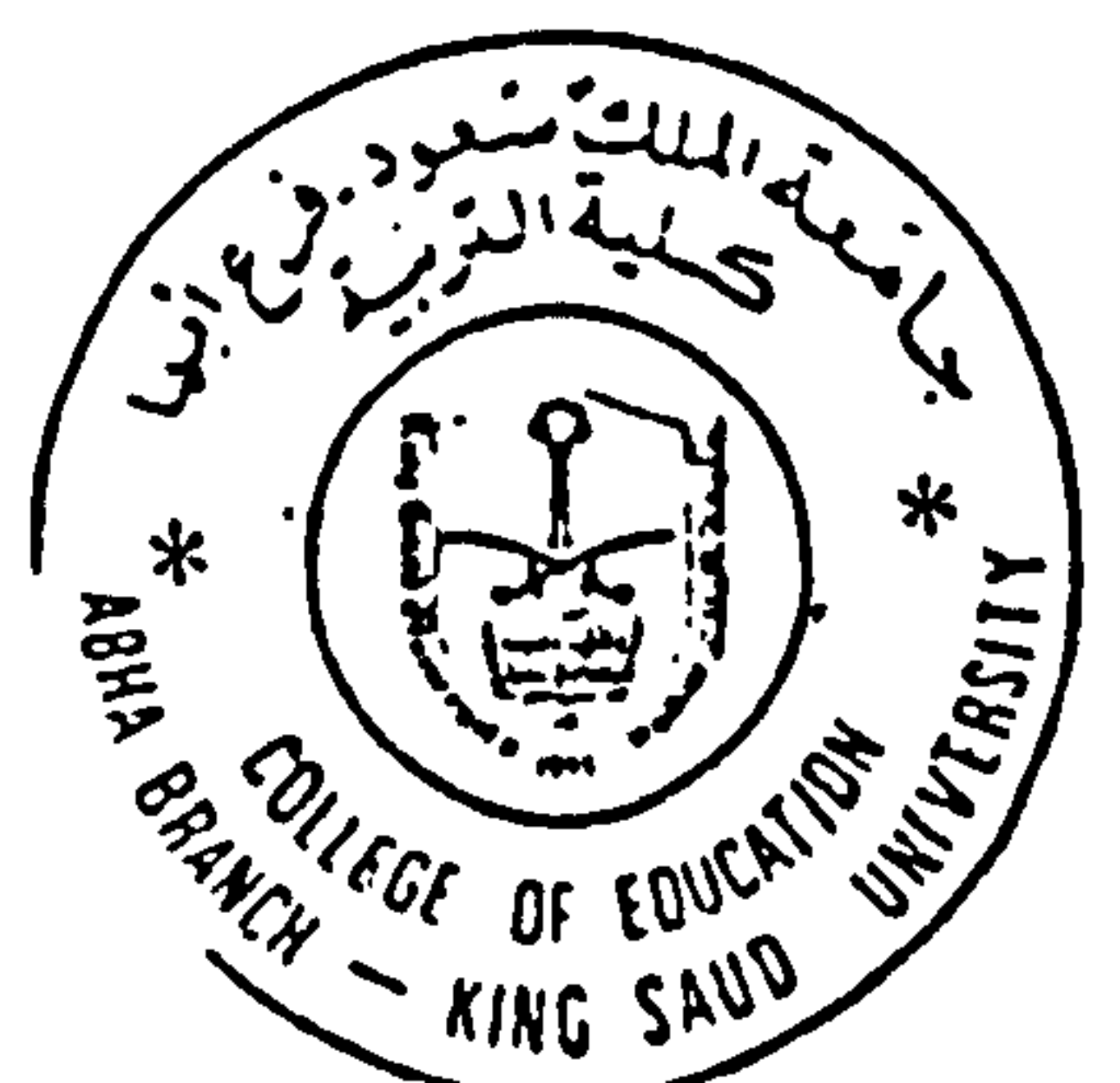
**يستنتج الطلاب من المعلومات المعطاة .**

**يستخلص الطلاب النتائج .**

**يميز الطلاب بين المناقشات القوية والمناقشات الضعيفة.**

يعين الطلاب المشكلة ويستنبطون طرق بحثها .

**إذا كان لديك مقترحات أو ملاحظات أخرى فأشر إليها هنا**





كم تستخدم الأساليب التالية غالباً فى التاريخ ؟

ضع إشارة فى مربع واحد فقط لكل أسلوب .

كثير جداً   كثير   متوسط   قليل   ليس على الإطلاق


يشرح / يحاضر المدرس .

يصيغ الطلاب عموميات .

يطرح الطلاب أسئلة .

يقدم الطالب عمل إلى المجموعة .

يستمتع الطلاب إلى تقديم الطلاب الآخرين .

يقوم الطلاب بالتفسير .

يصيغ الطلاب الفرضيات .

يشاهد الطلاب الفيديو أو يستمعون إلى

شريط ويسجلون ملاحظات .

يقوم الطلاب بالمناقشة فى مجموعات صغيرة .

يقود المدرس مناقشة الفصل .

يشتق الطلاب أداة من مصادر متعددة للعمل

وبحث المشكلة المقدمة أو الموضوع .

ينظم الطلاب بحث فى المشكلة المقدمة أو الموضوع .

يستنتج الطلاب من المعلومات المعطاة .

يستخلص الطلاب النتائج .

يميز الطلاب بين المناقشات القوية والمناقشات الضعيفة .

يعين الطلاب المشكلة ويستنبطون طرق بحثها .

إذا كان لديك مقترحات أو ملاحظات أخرى فأشر إليها هنا



## (١٠) كم تستخدم الأساليب التالية غالباً في الجغرافيا ؟

ضع إشارة في مربع واحد فقط لكل أسلوب

كثير جداً   كثير   متوسط   قليل   ليس على الإطلاق


يشرح / يحاضر المدرس .

يصيغ الطلاب عموميات .

يطرح الطلاب أسئلة .

يقدم الطالب عمل إلى المجموعة .

يستمع الطلاب إلى تقديم الطلاب الآخرين .

يقوم الطلاب بالتفسير .

يصيغ الطلاب الفرضيات .

يشاهد الطلاب الفيديو أو يستمعون إلى

شريط ويسجلون ملاحظات .

يقوم الطلاب بالمناقشة في مجموعات صغيرة .

يقود المدرس مناقشة الفصل .

يشتق الطلاب أداة من مصادر متعددة للعمل

وبحث المشكلة المقدمة أو الموضوع .

ينظم الطلاب بحث في المشكلة المقدمة أو الموضوع .

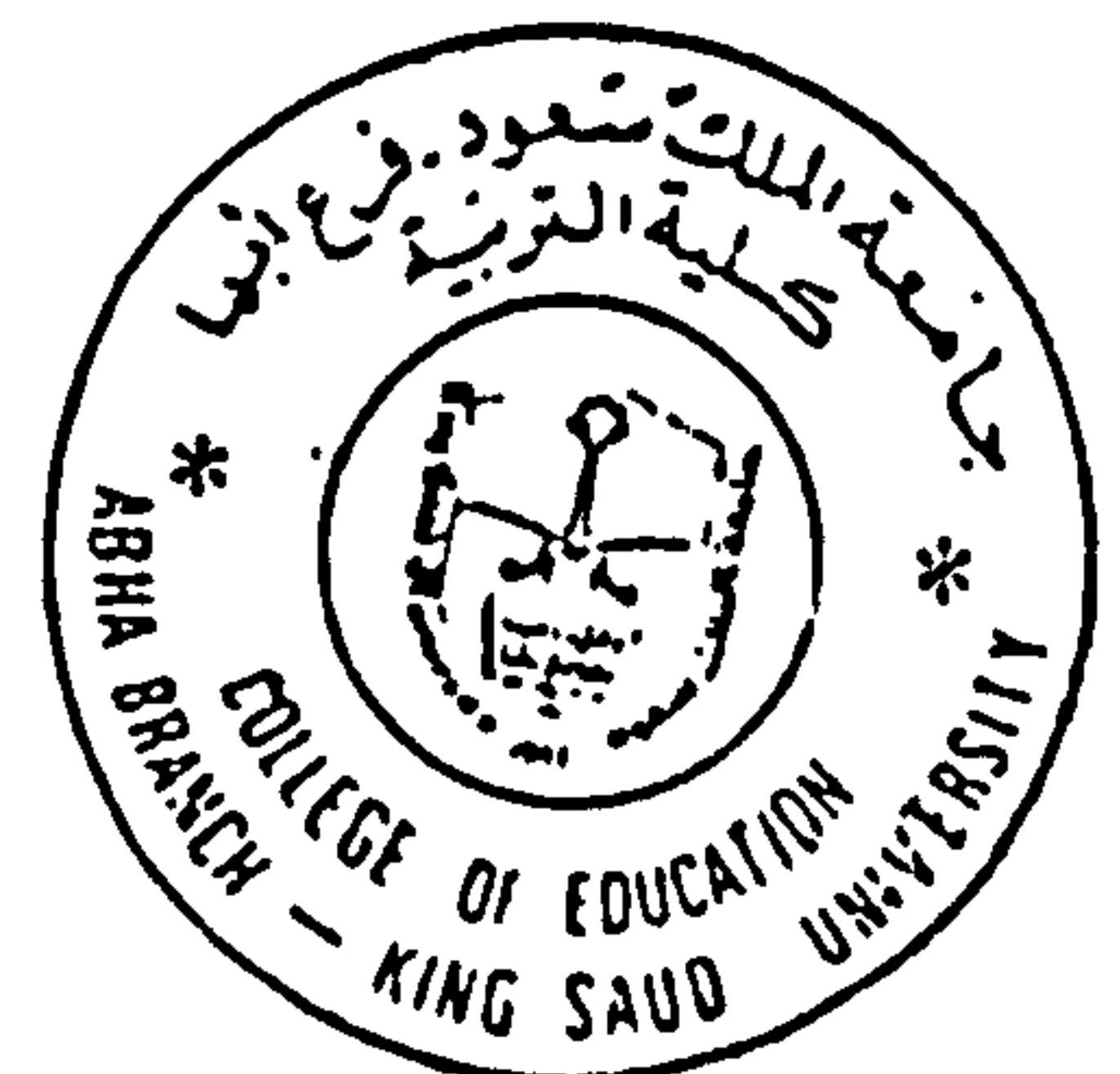
يستنتج الطلاب من المعلومات المعطاة .

يستخلص الطلاب النتائج .

يميز الطلاب بين المناقشات القوية والمناقشات الضعيفة .

يعين الطلاب المشكلة ويستنبطون طرق بحثها .

إذا كان لديك مقترحات أو ملاحظات أخرى فأشر إليها هنا

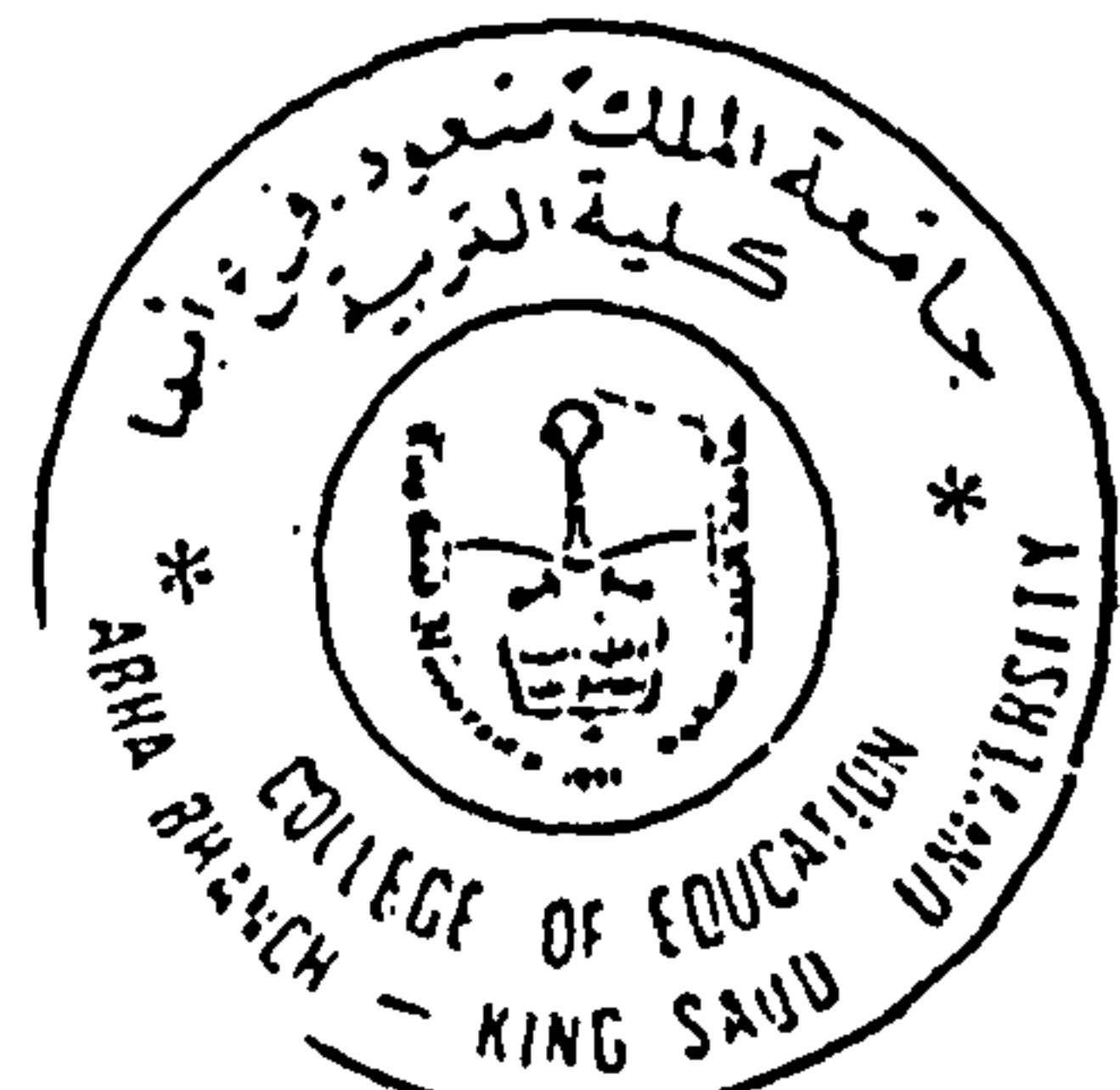


(١١) كم تستخدم الأساليب التالية غالباً في العلوم ؟  
ضع إشارة في مربع واحد فقط لكل أسلوب

كثير جداً    كثير    متوسط    قليل    ليس على الإطلاق


- يشرح / يحاضر المدرس .
- يصيغ الطلاب عموميات .
- يطرح الطلاب أسئلة .
- يقدم الطالب عمل إلى المجموعة .
- يستمتع الطلاب إلى تقديم الطلاب الآخرين .
- يقوم الطلاب بالتفسير .
- يصيغ الطلاب الفرضيات .
- يشاهد الطلاب الفيديو أو يستمعون إلى شريط ويسجلون ملاحظات .
- يقوم الطلاب بالمناقشة في مجموعات صغيرة .
- يقود المدرس مناقشة الفصل .
- يشتق الطلاب أداة من مصادر متعددة للعمل وبحث المشكلة المقدمة أو الموضوع .
- ينظم الطلاب بحث في المشكلة المقدمة أو الموضوع .
- يستنتج الطلاب من المعلومات المعطاة .
- يستخلص الطلاب النتائج .
- يميز الطلاب بين المناقشات القوية والمناقشات الضعيفة .
- يعين الطلاب المشكلة ويستنبطون طرق بحثها .

إذا كان لديك مقترحات أو ملاحظات أخرى فأشر إليها هنا





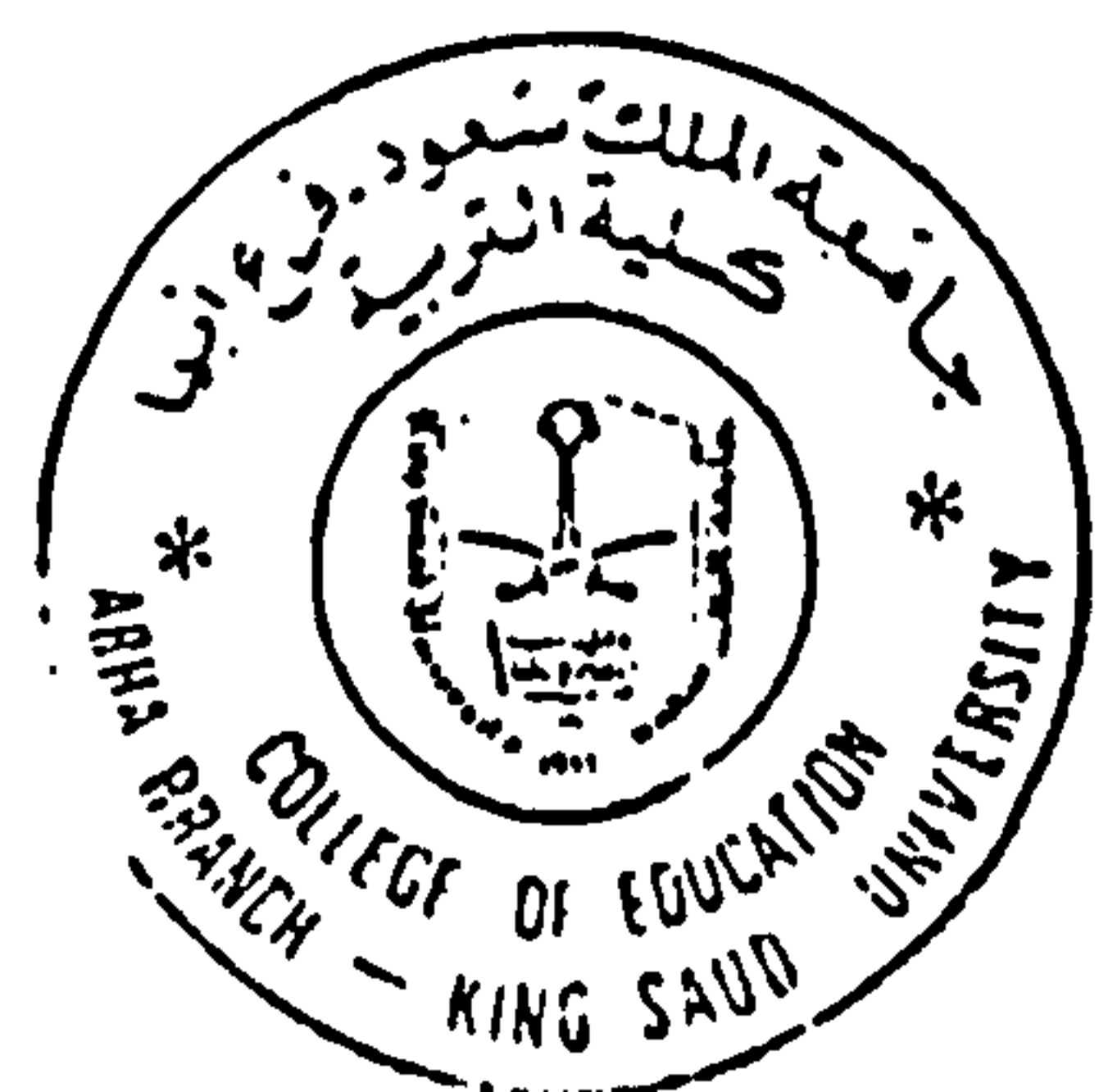
ضع من فضلك إشارة في مربع واحد فقط لكل أسلوب

كثير جدا    كثير    متوسط    قليل    ليس على الإطلاق

[illegible]

- يشرح / يحاضر المدرس .  
يصيغ الطلاب عموميات .  
يطرح الطلاب أسئلة .  
يقدم الطالب عمل إلى المجموعة .  
يستمع الطلاب إلى تقديم الطلاب الآخرين .  
يقوم الطلاب بالتفسير .  
يصيغ الطلاب الفرضيات .  
يشاهد الطلاب الفيديو أو يستمعون إلى شريط ويسجلون ملاحظات .  
يقوم الطلاب بالمناقشة في مجموعات صغيرة .  
يقود المدرس مناقشة الفصل .  
يشتق الطلاب أداة من مصادر متعددة للعمل وبحث المشكلة المقدمة أو الموضوع .  
ينظم الطلاب بحث في المشكلة المقدمة أو الموضوع .  
يستنتج الطلاب من المعلومات المعطاة .  
يستخلص الطلاب النتائج .  
يميز الطلاب بين المناقشات القوية والمناقشات الضعيفة .  
يعين الطلاب المشكلة ويستنبطون طرق بحثها .

**إذا كان لديك مقترحات أو ملاحظات أخرى فأشر إليها هنا**



(١٣) إلى أى مدى يؤثر إستخدامك للوسائل التعليمية التالية على إستمتاعك فى مادة التاريخ ؟  
 ضع إشارة فى مربع واحد فقط لكل أسلوب

كثير جداً    كثير    متوسط    قليل    ليس على الإطلاق


الكتب

الوثائق

الفيديو

التلفزيون

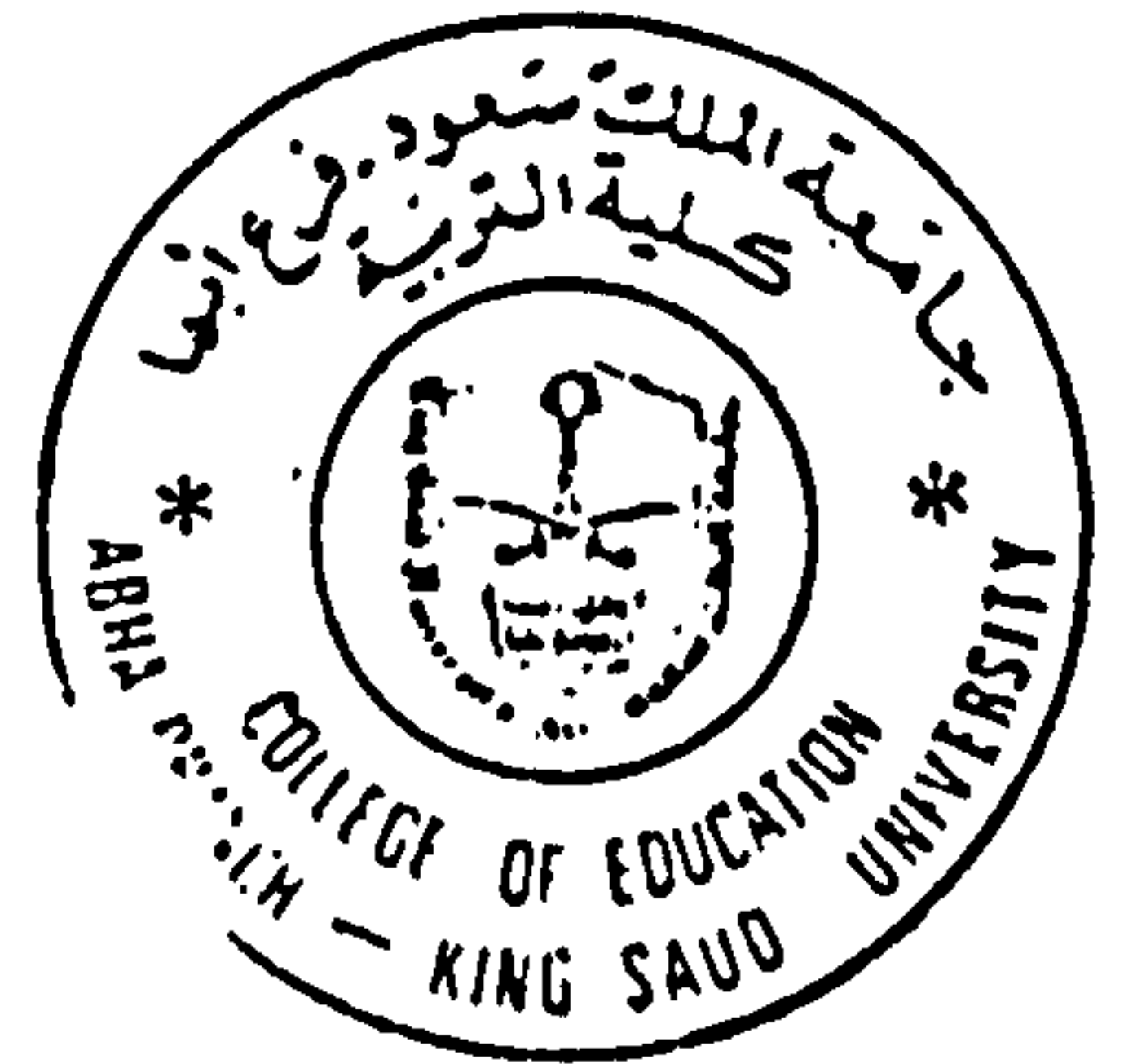
أشرطة التسجيل

الصور

الخرائط

الشفافيات

H l 9



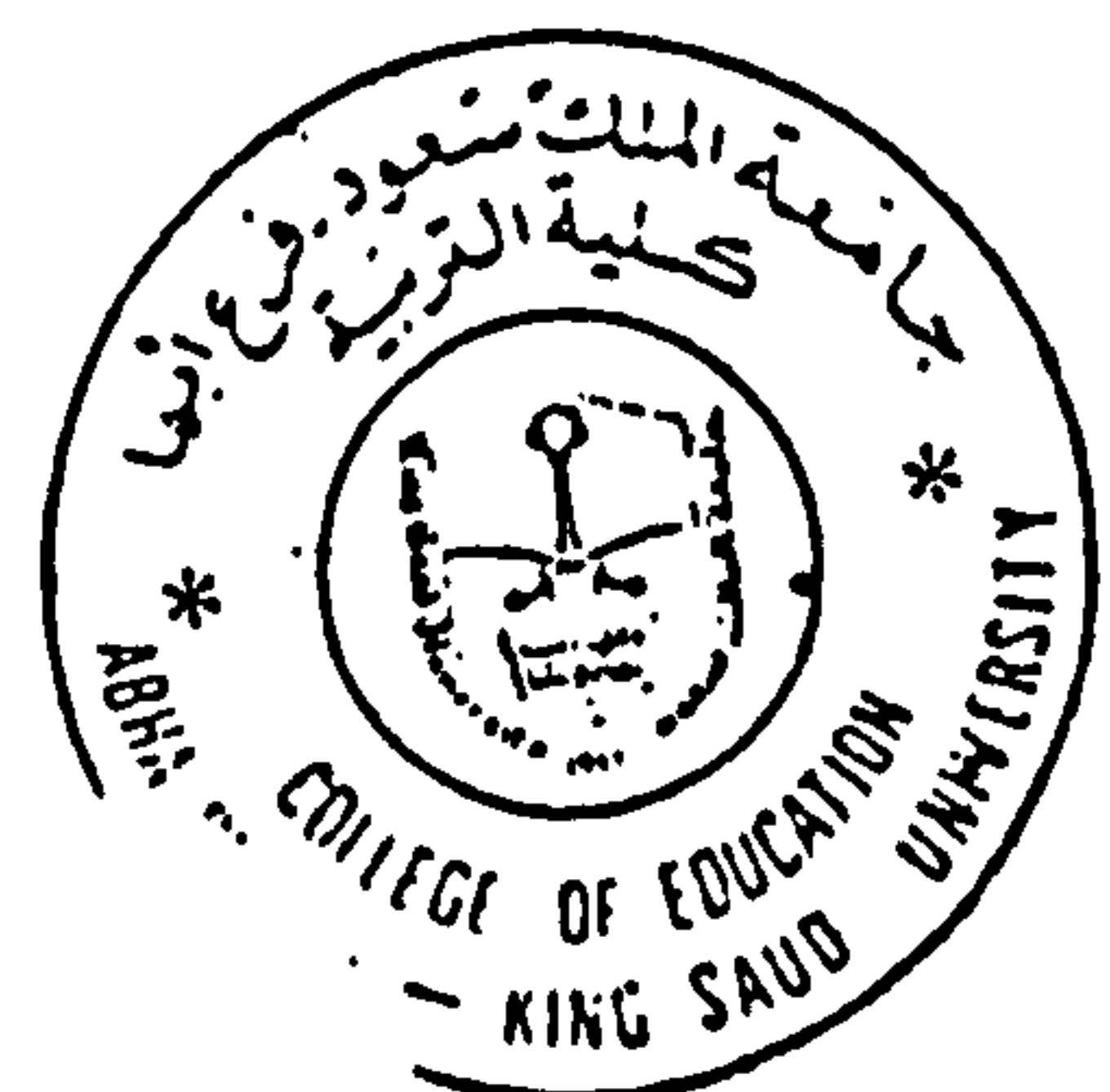
(١٤) ضع إشاره في مربع واحد فقط لكل سطر يصف مدرسك في دروس التاريخ .

	٥	٤	٣	٢	١	
مساعد						غير مساعد
حريص						غير حريص
متعاون						غير متعاون
مرن						غير مرن
مستجيب						منعزل
توجيه قوي						توجيه ضعيف
لطيف						غير لطيف
متحمس						غير متحمس
سهل الانقياد						غير مبال

(١٥) ضع إشاره في مربع واحد فقط تشير كم يؤثر محتوى المنهج علي إستمتاعك في التاريخ ؟

كثير جدا    كثير    متوسط    قليل    ليس على الإطلاق

--	--	--	--	--





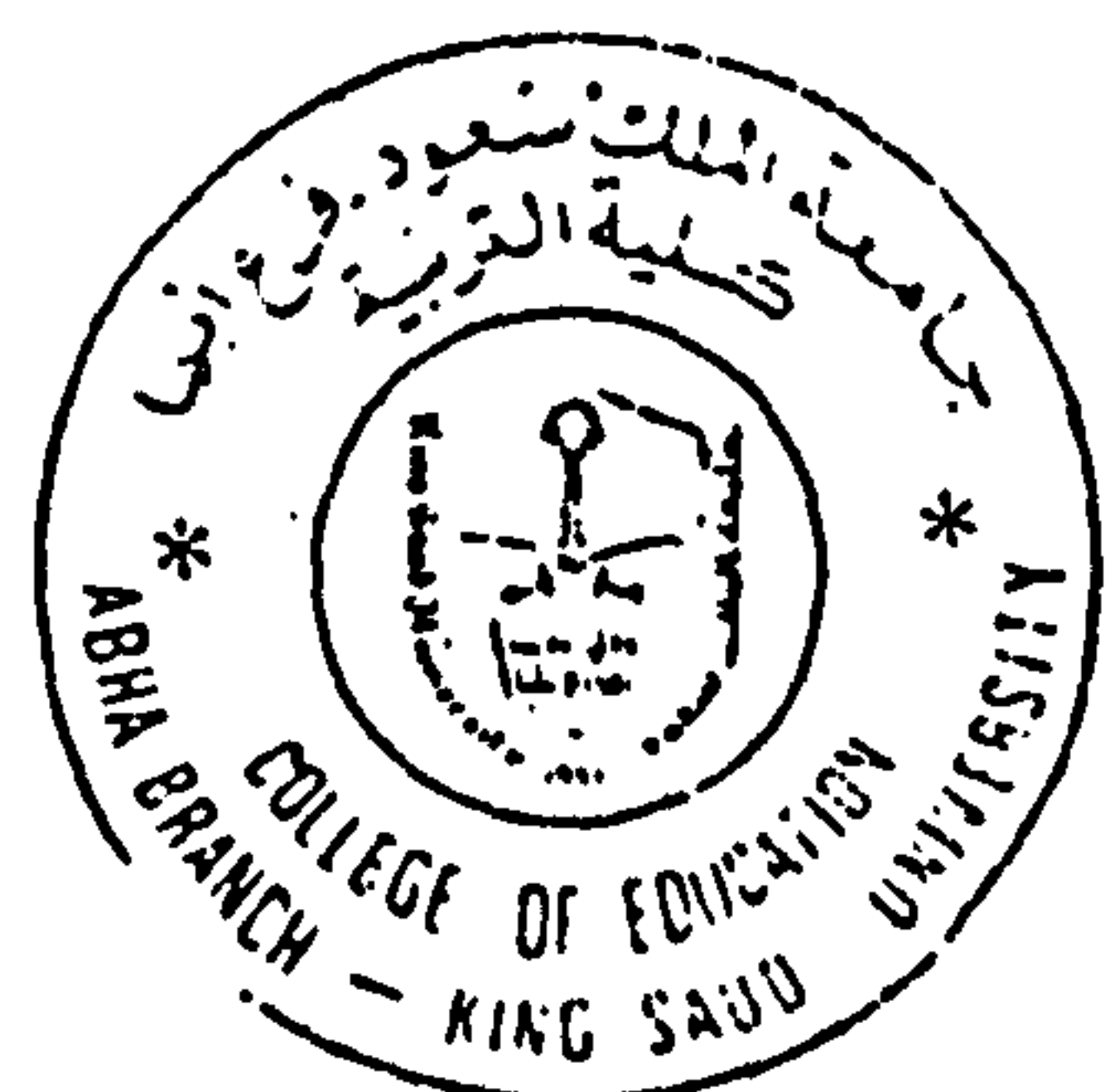
(١٦) إلى أى مدى تؤثر الأساليب التدريسية التالية على استمتاعك فى مادة الجغرافيا ؟

ضع إشارة في مربع واحد فقط لكل أسلوب

کثیر جدا    کثیر    متوسط    قلیل    لبس علی  
الإطلاق

[illegible]

- يشرح / يحاضر المدرس .  
يصيغ الطلاب عموميات .  
يطرح الطلاب أسئلة .  
يقدم الطالب عمل إلى المجموعة .  
يستمع الطلاب إلى تقديم الطلاب الآخرين .  
يقوم الطلاب بالتفسير .  
يصيغ الطلاب الفرضيات .  
يشاهد الطلاب الفيديو أو يستمعون إلى شريط ويسجلون ملاحظات .  
يقوم الطلاب بالمناقشة في مجموعات صغيرة .  
يقود المدرس مناقشة الفصل .  
يشتق الطلاب أداة من مصادر متعددة للعمل وبحث المشكلة المقدمة أو الموضوع .  
ينظم الطلاب بحث في المشكلة المقدمة أو الموضوع .  
يستنتج الطلاب من المعلومات المعطاة .  
يستخلص الطلاب النتائج .  
يميز الطلاب بين المناقشات القوية والمناقشات الضعيفة .  
يعين الطلاب المشكلة ويستنبطون طرق بحثها .



(١٧) إلى أى مدى يؤثر استخدامك للوسائل التعليمية التالية على إستماعتك فى مادة الجغرافيا ؟

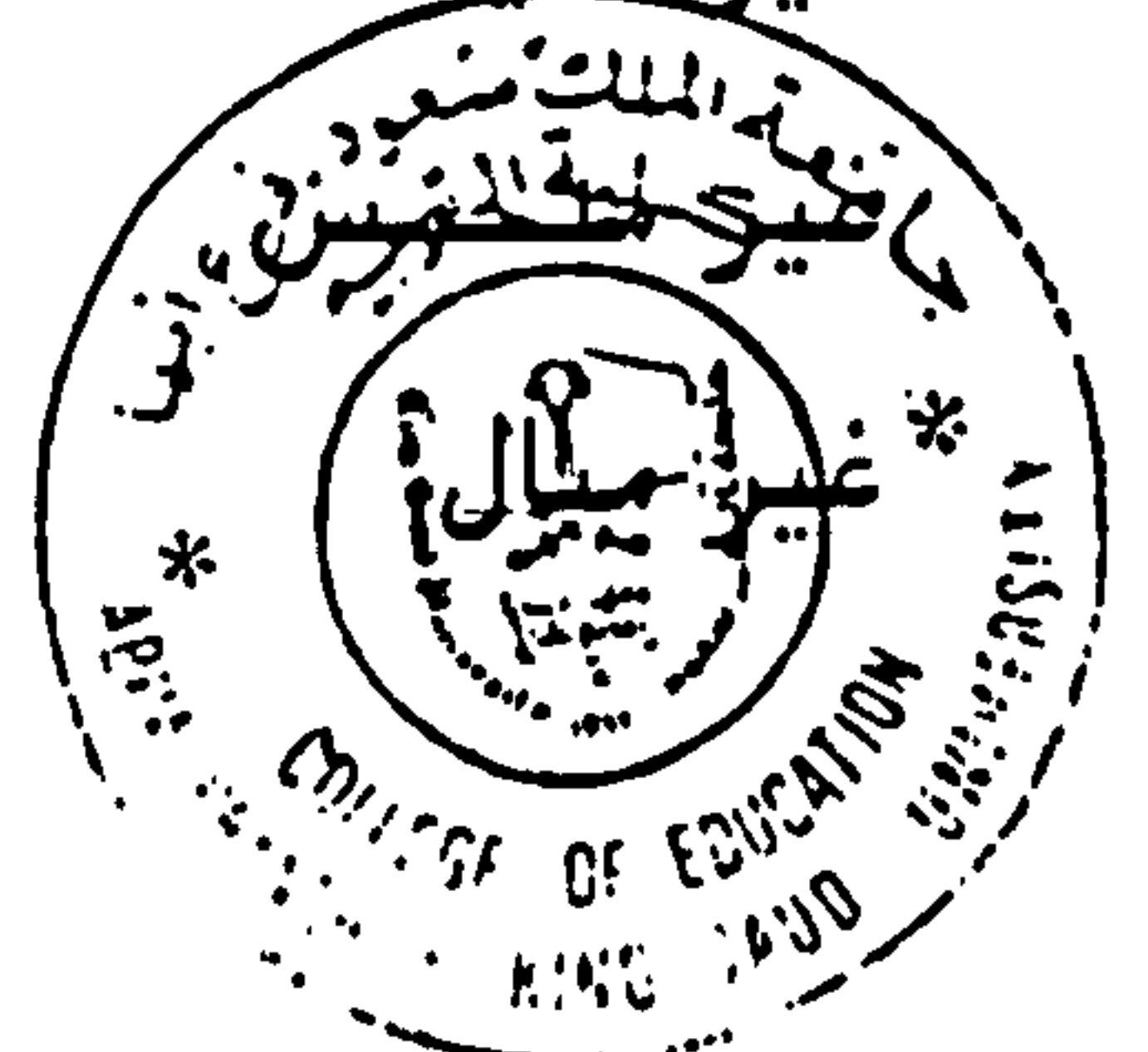
ضع إشارة فى مربع واحد فقط لكل أسلوب

كثير جدا	كثير	متوسط	قليل	ليس على الإطلاق	
					الكتب
					الوثائق
					الفيديو
					التلفزيون
					أشرطة التسجيل
					الصور
					الخرائط
					الشفافيات

٩ من ٢٠

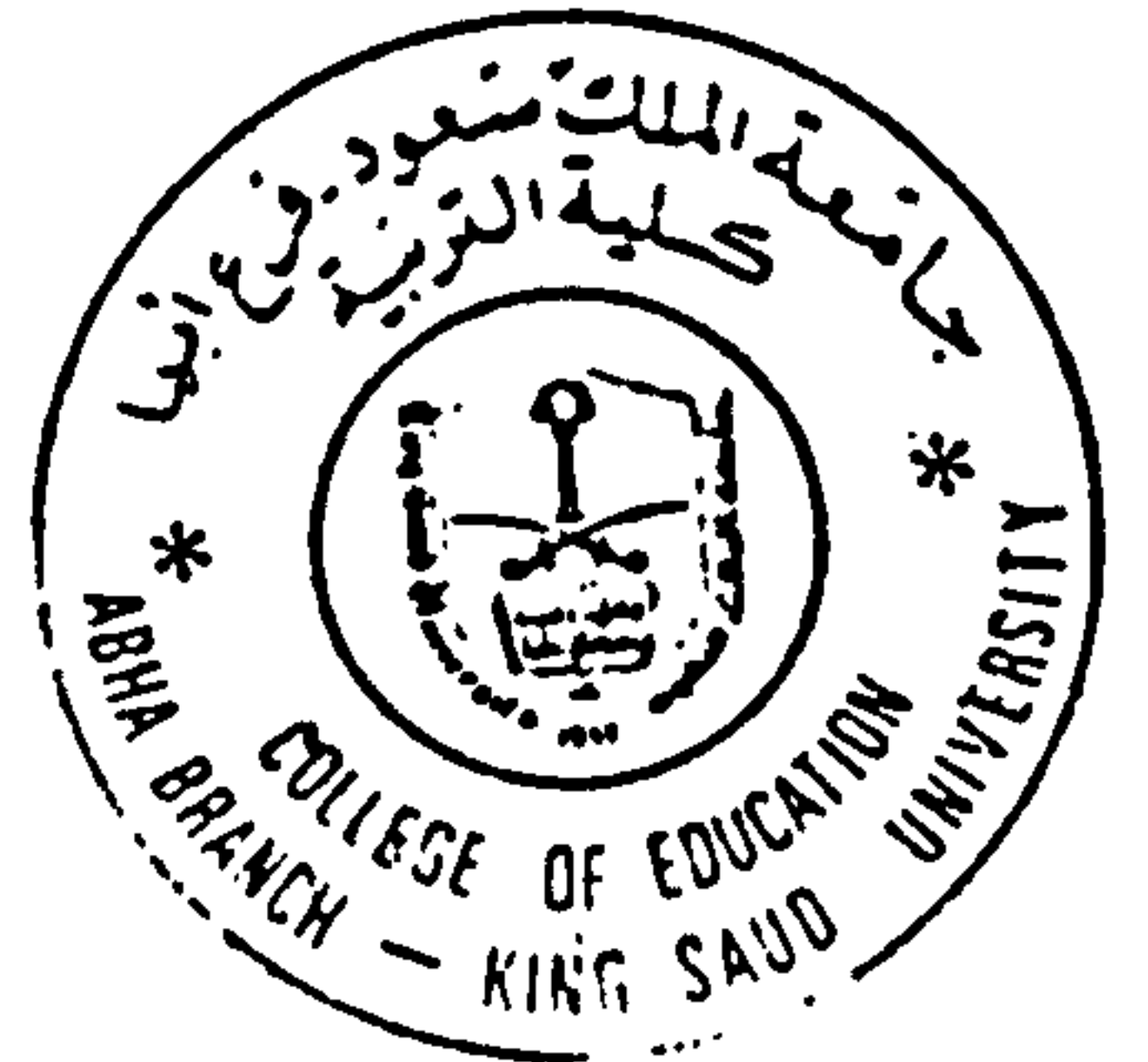
(١٨) ضع إشاره فى مربع واحد فقط لكل سطر يصف مدرسك فى دروس الجغرافيا .

٥	٤	٣	٢	١	
					غير مساعد
					غير حريص
					غير متعاون
					غير مرن
					منعزل
					توجيه ضعيف
					غير لطيف
					مساعد
					حريص
					متعاون
					مرن
					مستجيب
					توجيه قوي
					لطيف
					متحمس
					سهل الانقياد



(١٩) ضع إشارته في مربع واحد فقط تشير كم يؤثر محتوى المنهج علي إستمتاعك في الجغرافيا ؟

كثير جدا	كثير	متوسط	قليل	ليس على الإطلاق
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





كثير جدا    كثير    متوسط    قليل    ليس على الإطلاق

[illegible]

- يشرح / يحاضر المدرس .  
يصيغ الطلاب عموميات .  
يطرح الطلاب أسئلة .  
يقدم الطالب عمل إلى المجموعة .  
يستمع الطلاب إلى تقديم الطلاب الآخرين .  
يقوم الطلاب بالتفسير .  
يصيغ الطلاب الفرضيات .  
يشاهد الطلاب الفيديو أو يستمعون إلى شريط ويسجلون ملاحظات .  
يقوم الطلاب بالمناقشة في مجموعات صغيرة .  
يقود المدرس مناقشة الفصل .  
يشتق الطلاب أداة من مصادر متعددة للعمل وبحث المشكلة المقدمة أو الموضوع .  
ينظم الطلاب بحث في المشكلة المقدمة أو الموضوع .  
يستنتج الطلاب من المعلومات المعطاة .  
يستخلص الطلاب النتائج .  
يميز الطلاب بين المناقشات القوية والمناقشات الضعيفة .  
يعين الطلاب المشكلة ويستنبطون طرق بحثها .

**إذا كان لديك مقترحات أو ملاحظات أخرى فأشر إليها هنا**

(٢١) إلى أى مدى يؤثر استخدامك للوسائل التعليمية التالية على إستماعتك فى مادة العلوم ؟  
ضع إشارة فى مربع واحد فقط لكل وسيلة .

كثير جداً	كثير	متوسط	قليل	ليس على الإطلاق

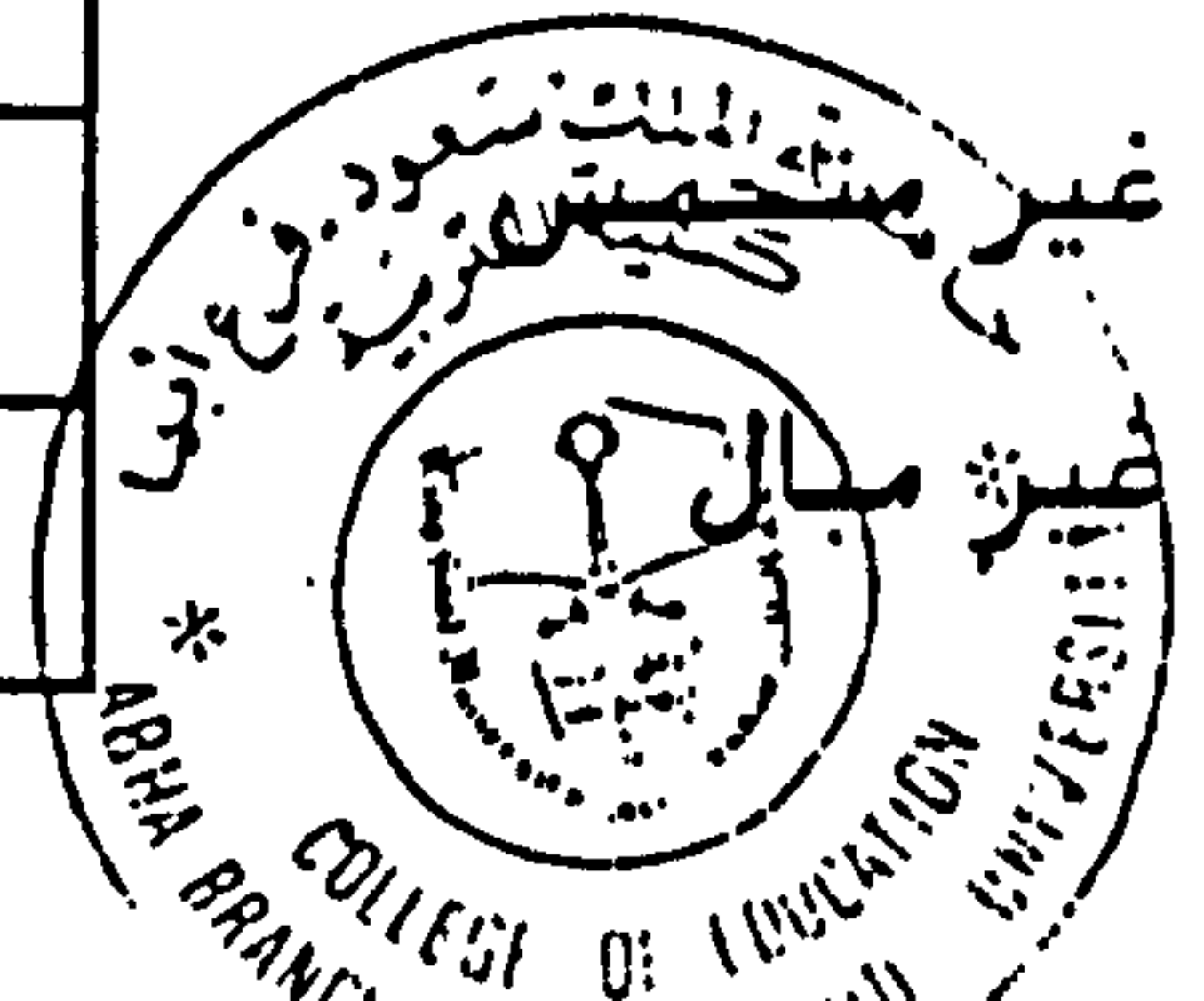
الكتب  
 الوثائق  
 الفيديو  
 التلفزيون  
 أشرطة التسجيل  
 التجهيز العملى  
 الصور  
 الخرائط  
 الشفافيات

(٢٢) ضع إشاره فى مربع واحد فقط لكل سطر يصف مدرسك فى دروس العلوم .

٥	٤	٣	٢	١
مساعد				
حريص				
متعاون				
مرن				
مستجيب				
توجيه قوي				
لطيف				
متحمس				
سهل الانقياد				

غير مساعد  
 غير حريص  
 غير متعاون  
 غير مرن  
 منعزل  
 توجيه ضعيف  
 غير لطيف

غير متحمس



(٢٣) ضع إشاره في مربع واحد فقط تشير كم يؤثر محتوى المنهج علي إستمتاعك في العلوم ؟

كثير جدا	كثير	متوسط	قليل	ليس على الإطلاق

(٢٤) إلى أي مدى تشعر بالمتعه في المواد التاليه ؟

ضع إشاره في مربع واحد فقط لكل ماده..

كثير جدا	كثير	متوسط	قليل	ليس على الإطلاق

التاريخ

الجغرافيا

العلوم

(٢٥) إلى أي مدى ترغب في محاولة الأساليب التدريسية التاليه ؟

كثير جدا	كثير	متوسط	قليل	ليس على الإطلاق

يعمل الطلاب في مجموعات صغيره.

يعد الطلاب مقالات لوحدهم .

يعد الطلاب مقالات في مجموعات

يكتب الطلاب ملاحظات من الكتب

إعداد بحث / مشروع استخدام المكتبه .

يملئ المدرس بعض الملاحظات





لكل من الوسائل التالية أشر الي كمية إستخدامها في المواد الموضحة .  
ضع إشاره في مربع واحد فقط لكل وسيله .

(٢٦) في التاريخ

كثير جدا    كثير    متوسط    قليل    ليس على  
الإطلاق


الكتب

الوثائق

الفيديو

التلفزيون

أشرطة التسجيل

الصور

الخرائط

الشفافيات

9 ٩٥٥٥ ١٤

(٢٧) في الجغرافيا

كثير جدا    كثير    متوسط    قليل    ليس على  
الإطلاق


الكتب

الوثائق

الفيديو

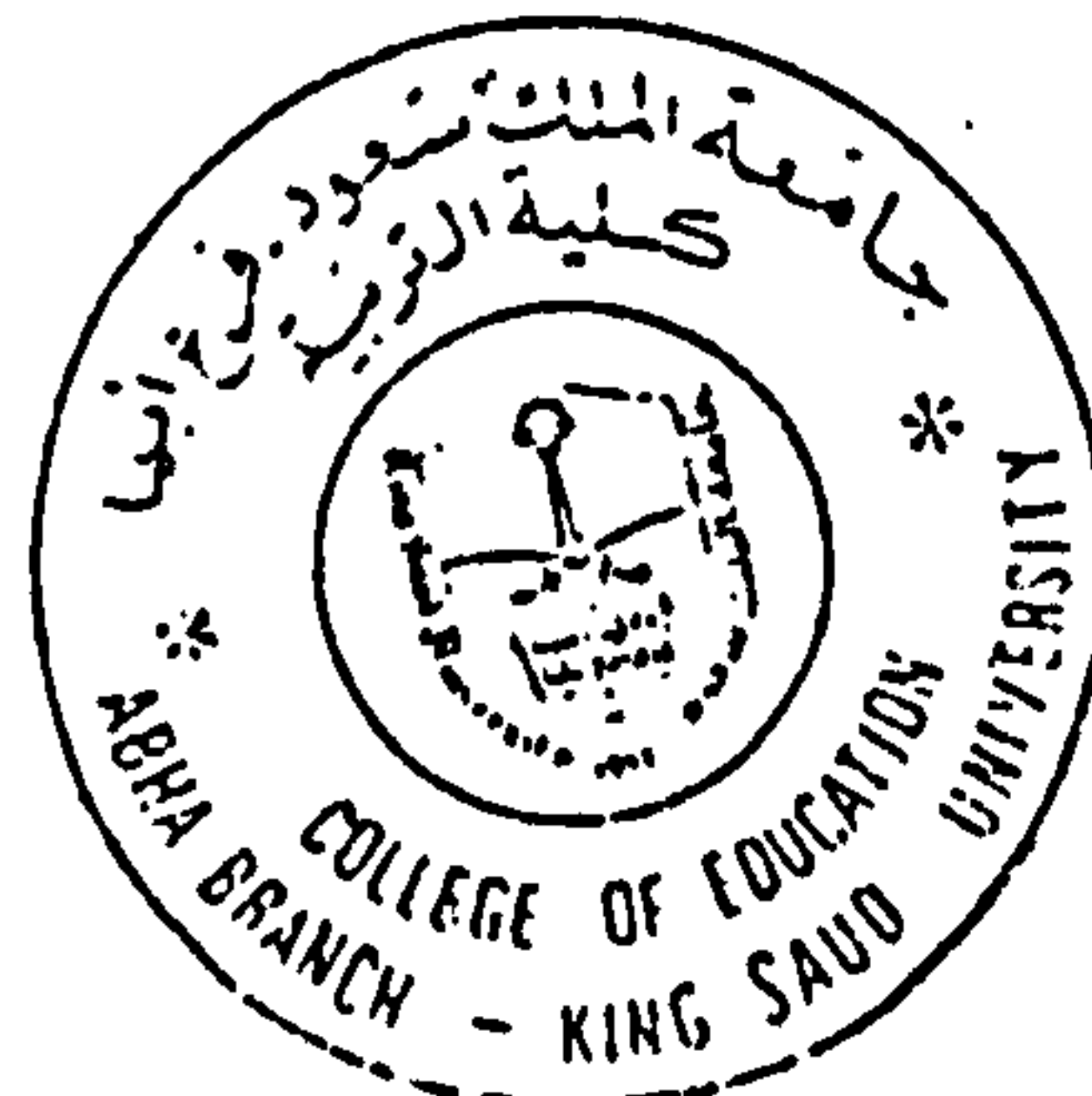
التلفزيون

أشرطة التسجيل

الصور

الخرائط

الشفافيات



## (٢٨) في العلوم

كثير جدا    كثير    متوسط    قليل    ليس على الإطلاق


الكتب

الوثائق

الفيديو

التلفزيون

أشرطة التسجيل

التجهيز العملي

الصور

الخرائط

الشفافيات

(٢٩) كم تعتقد أهمية المواد التالية ؟  
ضع إشارة في مربع واحد فقط ..

كثير جدا    كثير    متوسط    قليل    ليس على الإطلاق


التاريخ

الجغرافيا

العلوم



في القسم التالي أشر لماذا تكون تلك المواد مهمة والى أي حد تكون مهمة وفقاً للأساليب التالية :  
 مثال : في العلوم ربما تكون إجابتك كالتالي :

ليس على الإطلاق	قليل الأهمية جداً	قليل الأهمية	مهم	مهم جداً
	✓			
			✓	

للحصول على وظيفة جيدة .

لتجنب الإخفاق في الحياة .

(٣٠) في التاريخ

ليس على الإطلاق	قليل الأهمية جداً	قليل الأهمية	مهم	مهم جداً

للحصول على وظيفة جيدة .

لتجنب الإخفاق في الحياة .

للاستمتاع .

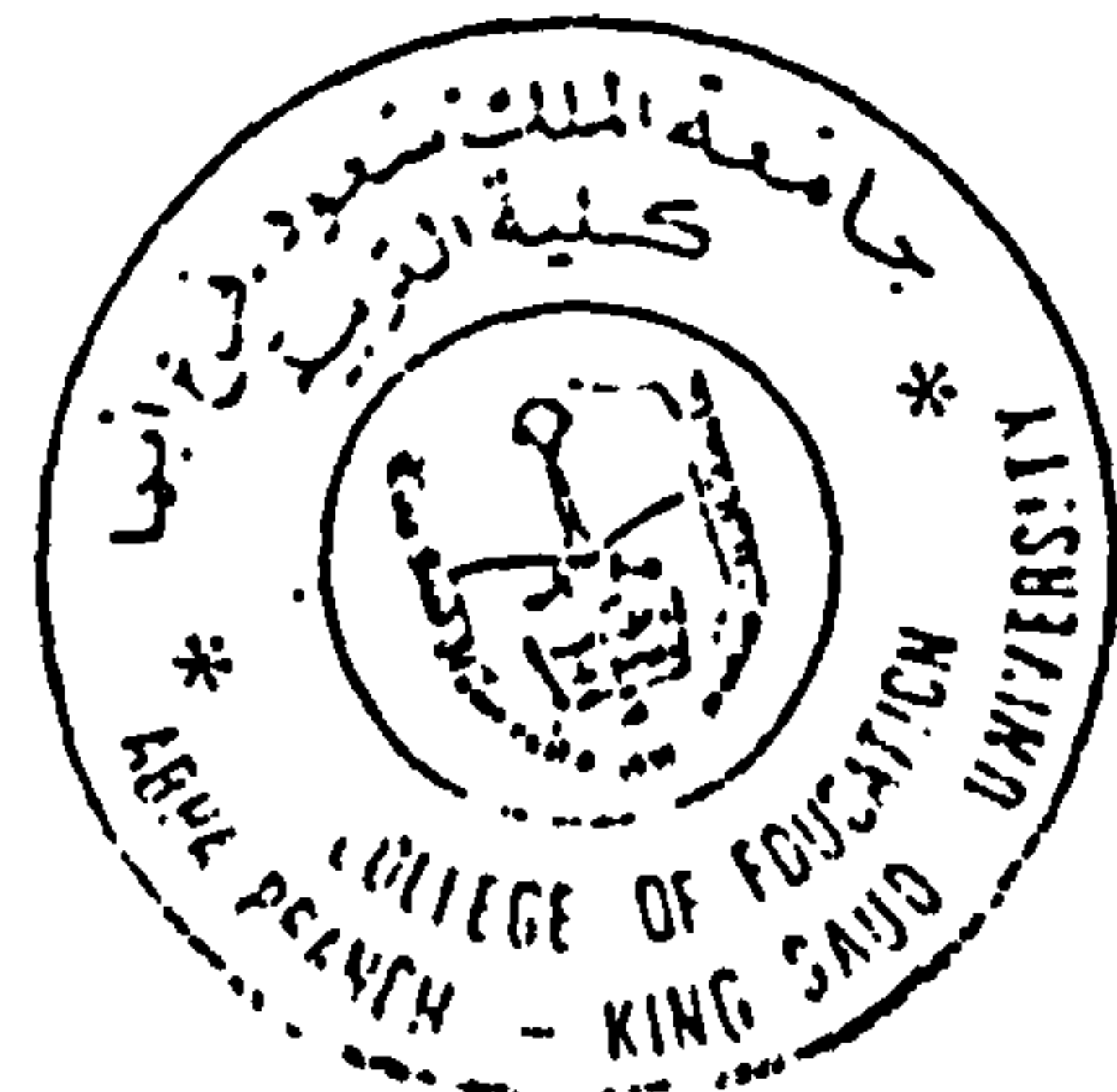
للحصول على المؤهلات .

للحصول على مركز اجتماعي .

لإسهام في الحياة الثقافية .

وفقاً لنصيحة الوالدين .

وفقاً لنصيحة الأصدقاء .





## (٣١) في الجغرافيا

مهم جدا	مهم	قليل الأهمية	قليل الأهمية جدا	ليس على الإطلاق

للحصول على وظيفة جيدة .

لتجنب الإخفاق في الحياة .

للاستمتاع .

للحصول على المؤهلات .

للحصول على مركز اجتماعي .

لإسهام في الحياة الثقافية .

وفقا لنصيحة الوالدين .

وفقا لنصيحة الأصدقاء .

## (٣٢) في العلوم

مهم جدا	مهم	قليل الأهمية	قليل الأهمية جدا	ليس على الإطلاق

للحصول على وظيفة جيدة .

لتجنب الإخفاق في الحياة .

للاستمتاع .

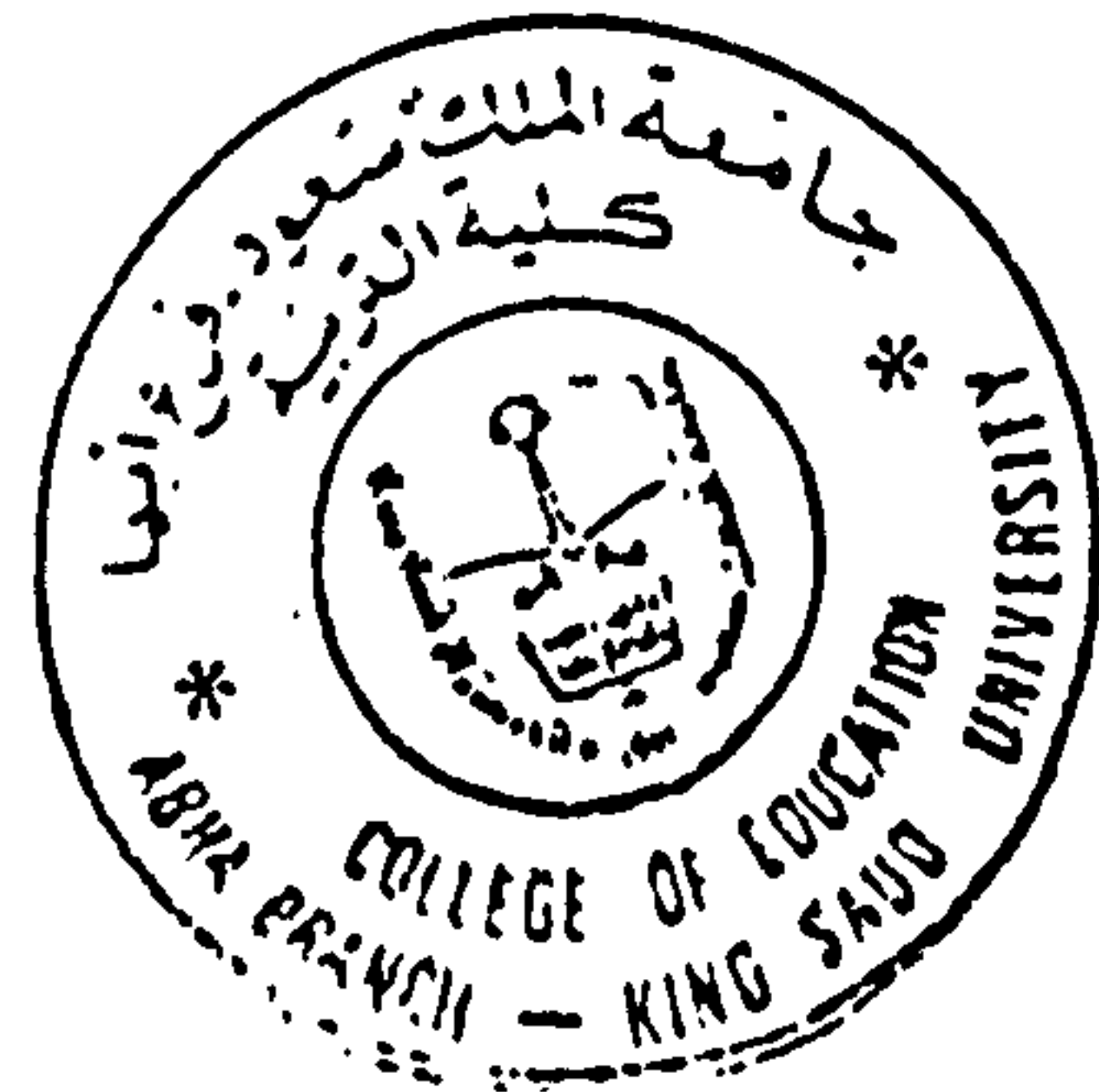
للحصول على المؤهلات .

للحصول على مركز اجتماعي .

لإسهام في الحياة الثقافية .

وفقا لنصيحة الوالدين .

وفقا لنصيحة الأصدقاء .



(٣٣) كم تجد سهولة هذه المواد عموماً ؟

ضع إشارة في مربع واحد فقط لكل مادة .

صعب جداً	صعب	أحياناً سهل/صعب	سهل	سهل جداً

التاريخ

الجغرافيا

العلوم

(٣٤) هل تنوي دراسة المواد التالية في التعليم العالي ؟

لا	نعم

التاريخ

الجغرافيا

العلوم

(٣٥) كم السهولة التي تجدها لحفظ وتذكر الموضوعات في المواد التالية ؟

ضع إشارة واحدة فقط لكل مادة ..

صعب جداً	صعب	أحياناً سهل/صعب	سهل	سهل جداً

التاريخ

الجغرافيا

العلوم



ضع إشارة في أحد المربعات فقط لكل سؤال من الأسئلة التالية :

(٣٦) كم تتوقع مقدار المعرفة التي يملكها مدرسك في مادة التاريخ ؟

كثير جداً    كثير    متوسط    قليل    ليس على الإطلاق

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(٣٧) إلى أي مدى تقدر مدرس التاريخ ؟

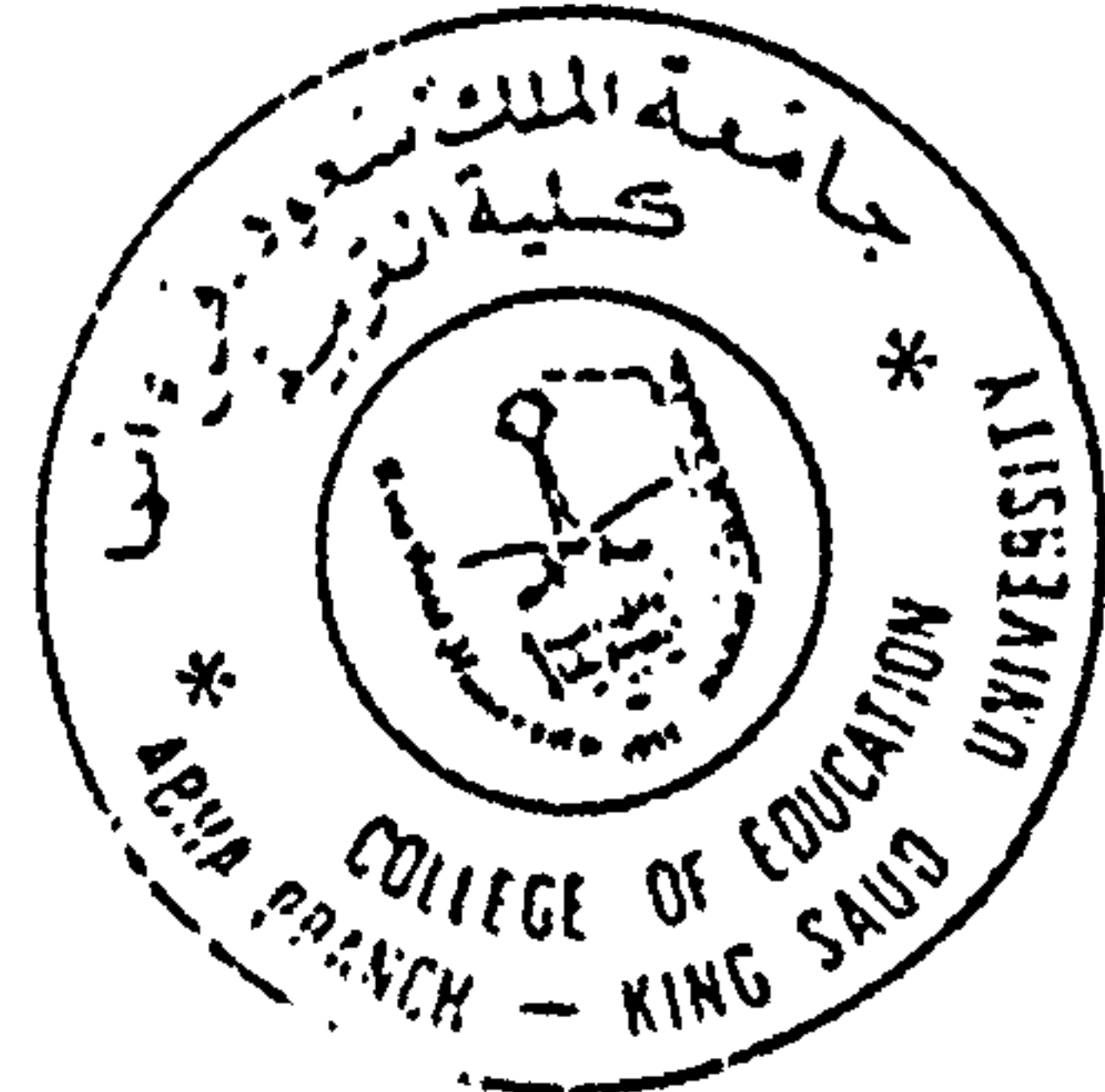
كثير جداً    كثير    متوسط    قليل    ليس على الإطلاق

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إذا كان لديك مقترحات أو ملاحظات أخرى فأشر إليها هنا

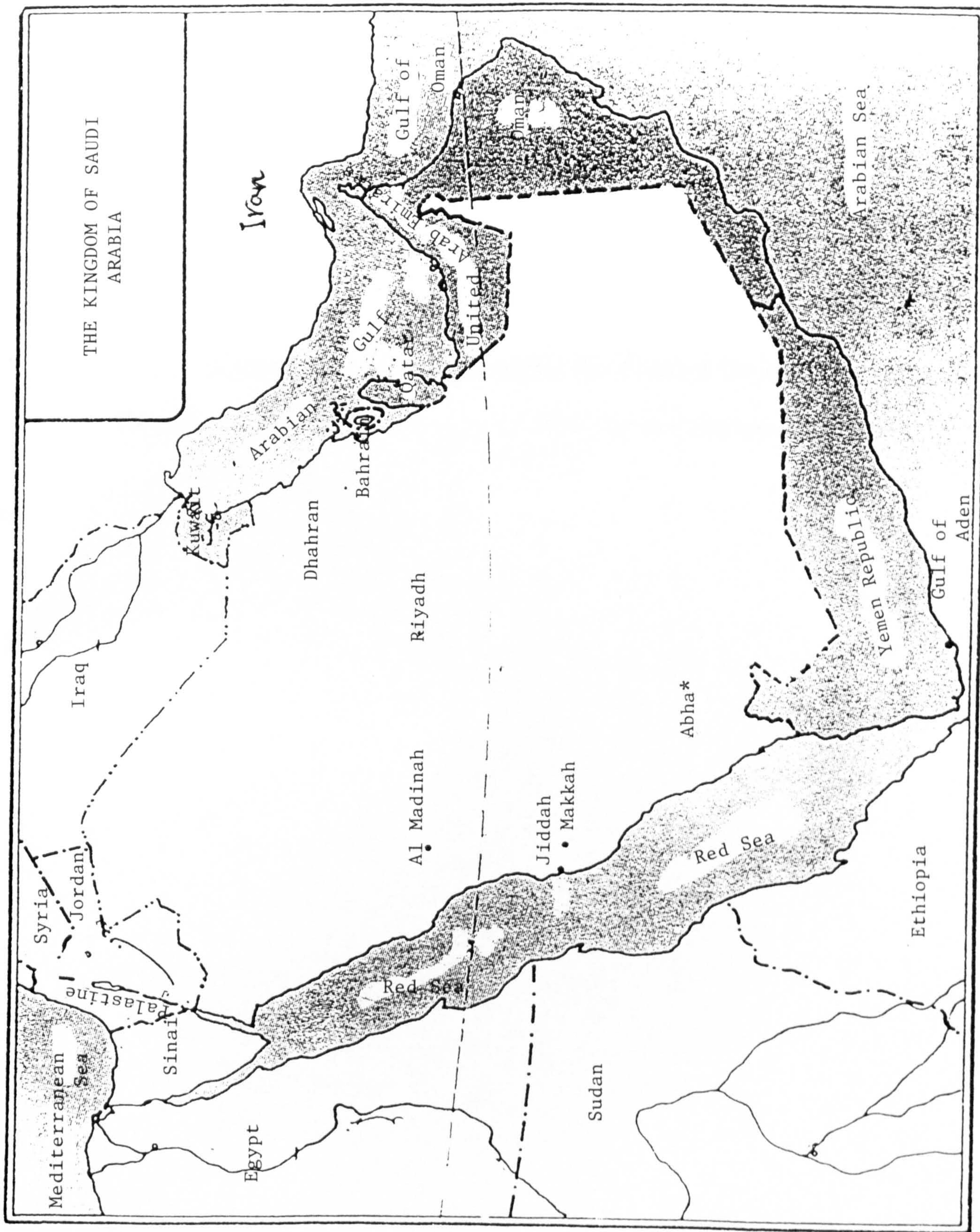
(٣٨) من فضلك دع هذه المربعات خالية من الكتابة .

١	التاريخ
١	جغرافيا
٦	علوم



أشكرك على حسن تعاونك في الإجابة على هذه التمارين





\* The location of the research study



## **Appendix (19)**

### **Examples of Some Lessons for the Control Group**

The plans of some lessons which have been studied by the control group using the traditional method

The Prophet Mohammed before His Prophecy	Subject	Class	Time	Date
<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Students should understand how Allah takes care of the Prophet Mohammed.</li> <li>2. Students should enumerate the virtues of the Prophet Mohammed.</li> <li>3. Students should mention some verses that have been revealed to Prophet Mohammed in the Hira Cave.</li> </ol> <p><b>Introduction:</b></p> <p>The teacher will ask students some questions about the purposes of studying the biography of the Prophet Mohammed.</p> <p><b>Presentation:</b></p> <p>The teacher will explain all the information, facts and knowledge related to the following points:</p> <p>The Prophet Mohammed's hatred of bad actions and idols.</p> <p>The wisdom and faithfulness of the Prophet Mohammed.</p> <p>His long term stay at the Hira Cave.</p> <p><b>Application:</b></p> <p>The teacher should ask his students some questions to check their understanding of the previous facts.</p> <p>The teacher should give a summary of the whole lesson.</p> <p><b>Resources:</b> blackboard, chalks and maps.</p> <p><b>Recapitulation:</b></p> <p>The teacher will give a summary of the lesson.</p> <p><b>Resources:</b> The blackboard, prescribed textbook and map.</p> <p><b>Assignment:</b></p> <p>The teacher should give his students one or two questions to answer them at home, for example,</p> <p>Write what is known about the Prophet Mohammed before his revelation</p>				



The Calling to Islam	Subject	Class	Time	Date
<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Students should know the significance of Islam in an Arab's life.</li> <li>2. Students should describe the dialogue which took place between Al-Najashi and the Muslim emigrants.</li> <li>3. Students should understand the Quraish situation when the Prophet Mohammed called them to Islam.</li> <li>4. Students should know which ways the Prophet Mohammed followed to call the people to Islam.</li> </ol> <p><b>Introduction:</b></p> <p>The teacher will ask his students some questions, for example, to check their understanding.</p> <p>Can you describe the honesty of the Prophet Mohammed?</p> <p>What did you know about his life before his revelation or prophecy?</p> <p><b>Presentation:</b></p> <p>The teacher will explain and talk about the following points:</p> <p>The Prophet Mohammed insisted on preaching Islam.</p> <p>The Prophet Mohammed's wisdom to call people to Islam.</p> <p>Ways of calling people to Islam.</p> <p><b>Application:</b></p> <p>The teacher will ask the following questions to enable his students to recall the previous information:</p> <p>Who can tell us about the dialogue which took place between the Muslims emigrants and Al-Najashi?</p> <p>How did Prophet Mohammed call people to Islam?</p> <p><b>Recapitulation:</b></p> <p>The teacher will give a brief summary of this lesson.</p> <p><b>Resources:</b> the blackboard, the prescribed textbook, map.</p> <p><b>Assignment:</b> How did the Prophet Mohammed preach Islam.</p>				

The Leadership of the Prophet Mohammed and His Wisdom	Subject	Class	Time	Date
<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Students should know how the Prophet Mohammed prepared himself and his followers for Al- Jihad.</li> <li>2. Students should explain the Prophet Mohammed's methods to deal with his enemies.</li> <li>3. Students should know different stories about the Prophet Mohammed's wisdom.</li> </ol> <p><b>Introduction:</b></p> <p>The teacher will ask his students about the previous lesson: How did the Prophet Mohammed call his people to Islam?</p> <p><b>Presentation:</b></p> <p>The teacher will explain different aspects of the leadership of the Prophet Mohammed as follows: The aim of Al-Jihad. Prophet Mohammed's preparations for Al-Jihad. Some examples of Prophet Mohammed's wisdom.</p> <p><b>Application:</b></p> <p>The Teacher will ask the students some questions to help them recall the previous information.</p> <p><b>Recapitulation:</b></p> <p>The teacher will recap on the lesson or ask one of the students to give a summary of it.</p> <p><b>Resources:</b> the blackboard, the prescribed textbook.</p> <p><b>Assignment:</b></p> <p>Students will answer the following questions in their notebooks at home: Explain the leadership of the Prophet Mohammed. Write some examples of the Prophet Mohammed's wisdom.</p>				

The Prophet Mohammed's Courage	Subject	Class	Time	Date
<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Students should recite one verse which explains the situation of the Prophet Mohammed and his companion Abubacr in the Tour Cave.</li> <li>2. Students should know the decision of the Prophet Mohammed in the battle of Badr.</li> <li>3. Students should understand the position of the Prophet Mohammed on the day of Hunain.</li> </ol> <p><b>Introduction:</b></p> <p>The teacher will ask students the following questions:</p> <p>What do you know about the leadership of the Prophet Mohammed?</p> <p>Can you remember some examples of his wisdom?</p> <p><b>Presentation:</b></p> <p>The teacher will talk about the courage of the Prophet Mohammed in the following situations:</p> <p>The incident of Tour Cave.</p> <p>The position of the Prophet Mohammed during the battle of Badr.</p> <p>The resistance of the Prophet Mohammed on the day of Hunain.</p> <p><b>Application:</b></p> <p>The teacher will evaluate his students' understanding by asking them different questions as follows:</p> <p>Would you mention one verse that explains the courage of the Prophet Mohammed.</p> <p>How did the Prophet Mohammed act in the battle of Badr?</p> <p>Can you talk about Prophet Mohammed's courage on the day of Hunain?</p> <p><b>Recapitulation:</b></p> <p>The teacher will give a summary of the lesson.</p> <p><b>Resources:</b> the blackboard and the prescribed textbook.</p> <p><b>Assignment:</b></p> <p>Students will be given the following question to answer at home:</p> <p>Write what you know about the courage of the Prophet Mohammed.</p>				



The Private Life of the Prophet Mohammed (His Asceticism)	Subject	Class	Time	Date
<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Students should know that the Prophet Mohammed was an ascetic.</li> <li>2. Students should explain different aspects of the Prophet Mohammed's asceticism.</li> </ol> <p><b>Introduction:</b></p> <p>Students will be asked at the beginning of the lesson to recall different information about the previous lesson as follows:</p> <p>Can remember some stories of the Prophet Mohammed's courage.</p> <p><b>Presentation:</b></p> <p>The teacher will talk in more detail about the asceticism of the Prophet Mohammed relating to the following points:</p> <p>the Prophet Mohammed's action regarding his wife's wealth.</p> <p>The aim of prophet Mohammed's asceticism.</p> <p>Some examples of his asceticism.</p> <p><b>Application:</b></p> <p>Students will be asked some questions as follows:</p> <p>What is the aim of the Prophet Mohammed's asceticism?</p> <p>How did the Prophet Mohammed deal with his wife's wealth?</p> <p>Explain some examples of the Prophet Mohammed's asceticism.</p> <p><b>Recapitulation:</b></p> <p>The teacher will give a short summary or ask one of his students to do so.</p> <p><b>Resources:</b> the blackboard and the prescribed textbook.</p> <p><b>Assignment:</b></p> <p>Students will be asked to answer the following question at home:</p> <p>What do you know about the asceticism of the Prophet Mohammed?</p>				

The Prophet Mohammed and His Justice, Mercy and Forgiveness	Subject	Class	Time	Date
<p><b>Objectives:</b></p> <ol style="list-style-type: none"> <li>1. Students should know some aspects of the Prophet Mohammed's justice.</li> <li>2. Students should understand some stories of the Prophet Mohammed's mercy and forgiveness.</li> </ol> <p><b>Introduction:</b></p> <p>Students will be asked to recall some information about the previous lesson as follows:</p> <p>What do you know about the Prophet Mohammed's asceticism?</p> <p>How did the Prophet Mohammed deal with the wealth of his wife?</p> <p><b>Presentation:</b></p> <p>The teacher will explain different aspects of the Prophet Mohammed's justice, mercy and forgiveness as follows:</p> <p>the Prophet Mohammed's efforts to implement justice.</p> <p>Some examples of his mercy and forgiveness.</p> <p><b>Application:</b></p> <p>Students will be asked to mention some examples of Prophet Mohammed's justice, mercy and forgiveness.</p> <p><b>Recapitulation:</b></p> <p>The teacher will give a brief summary of the lesson.</p> <p><b>Resources:</b> the blackboard and the prescribed textbook.</p> <p><b>Assignment:</b></p> <p>Students will be given the following questions to answer at home:</p> <p>What did the Prophet Mohammed say to the people during his illness?</p> <p>Write some examples of the mercy of Prophet Mohammed.</p>				

## **Appendix (20)**

### **Some Examples of Students' Responses to the Open-Ended Question of the Students' Attitudes Questionnaire (SAQ), translated from Arabic (Survey Group)**

Topics cover the following points:

1. using different teaching methods.
2. using different resources.
3. increasing history lessons.
4. the importance of history.
5. using different questions.
6. history library.
7. different assignments.
8. more information to history book.
9. making a link between the past and present.
10. organization oh history textbook.
11. students' age.
12. more preparation for teachers.
13. having questions at the end of each lessons.

#### **Section 1 (Using different teaching methods)**

Student no. 9 commented:

I suggest that teachers help their students to solve problems.

Student no. 23 commented:

I suggest that teachers use different methods, for example, discussion, and help their students to answer questions.

Student no. 72 commented:

I suggest that teachers use the traditional method with other methods

Student no. 158 commented:

History teachers talk all the time. I wish they would try to use different methods.

History lessons should be increased.



Student no. 177 suggested that:

Teachers should use different methods and resources and increase the number of lessons per week.

Student no. 184 suggested:

Using different methods.

Student no. 196 suggested:

Using different methods because I like the teacher who uses different methods in his teaching.

Student no. 235 commented:

I suggest using different methods, for example, where students make interpretations, and generalizations and deal with problems.

Student no. 247 made the different suggestions of:

Increasing history lessons and using different teaching methods.

Providing a historical library.

Encouraging students to participate in class activities.

Student no. 269 commented:

I like working in groups and using different methods.

Student no. 277 commented that:

Teachers use discussion and different questions.

There should be a library for history lessons.

Students should be trained to solve problems.

Student no. 296 suggested:

Using different methods.

Student no. 302 suggested:

Increasing history lessons in the secondary school.

Adding different questions at the end of each lesson.

Using different methods not only the traditional method.

Student no. 332 commented:

I enjoy participating in class discussion and I wish that teachers would use different methods.

It is important to create a historical library.

Student no. 347 commented that:

It is preferable for the teachers to use different methods.

## **Section 2 (Using different resources)**

Students no. 12 commented:

I suggest using different references besides the textbook.

Student no. 36 commented:

I would like history teachers to use maps which enable students to understand clearly and to ask a lot of questions.

Student no. 38 commented:

I suggest increasing the number of lessons per week to two, providing different resources, such as video-tapes and pictures and creating a historical library.

Student no. 61 commented:

I suggest preparing different educational aids which would enable students to understand and enjoy the lessons.

Student no. 63 commented:

It is important to provide transparencies and pictures.

Student no. 68 commented:

I suggest that teachers should use historical documents and other resources and as well as the library during history lessons.

Student no. 73 suggested:

Using maps in history lessons. I think history is important because I would like to know about the past.

Student no. 155 suggested:

Increasing the number of maps in the textbook and history.

Student no. 172 commented:

Yes, I have one suggestion - using different maps to help students to understand the lesson.

Student no. 177 suggested:

Teachers should use different methods and resources.

The number of lessons per week should be increased.

Student no. 201 suggested that:

It is necessary to provide different resources, such as video-tapes and TV, and to use different methods.

### **Section 3 (Increasing history lessons)**

Student no. 38 commented:

I suggest increasing the number of lessons per week to two, providing different resources, such as video-tapes and pictures, and creating a historical library.

Student no. 47 suggested:  
Increasing the history lessons from one session to two sessions per week.  
The history teacher should be well prepared.

Student no. 50 commented that:  
History lessons are not enough.  
The history textbook needs to be made very clear.

Student no. 59 commented:  
I suggest increasing the number of history lessons per week. History and social studies are very important to me.

Student no. 66 commented:  
It is necessary to have 2 history lessons per week.

Student no. 166 suggested:  
Having history lessons for two sessions per week instead of one.

Student no. 167 commented:  
I would like the history lessons to be increased from one per week to two.

Student no. 174 suggested:  
Increasing history lessons to two per week.

Student no. 177 suggested that:  
Teachers should use different methods and resources.  
The number of lessons per week should be increased.

Student no. 193 commented that:  
The time for history lessons is not enough to discuss more information. I feel that the content needs more clarity.

Student no. 247 made these different suggestions:  
Increasing history lessons and using different teaching methods.  
Providing a historical library.  
Encouraging students to participate in class activities.

Student no. 302 suggested:  
Increasing history lessons in the secondary school.  
Adding different questions at the end of each lesson.  
Using different methods not only traditional method.

Student no. 335 suggested:  
Increasing history lessons to two per week and using different methods.



#### **Section 4 (The importance of history)**

Student no. 14 commented that:  
History is very important and I like to studying it.

Student no. 59 commented:  
I suggest increasing the number of history lessons per week. History and social studies are very important to me.

Student no. 73 suggested:  
Using maps in history lessons. I think history is important because I would like to know about the past.

Student no. 191 commented:  
I suggest that students participate during the lesson. I enjoy using questions and different methods in teaching. History is my favourite subject.

Student no. 281 commented:  
I prefer using questions and having students participation in the lessons. I enjoy history.

Student no. 305 commented:  
I suggest increasing history lessons from one per week to two. I enjoy history very much when the teacher uses different methods such as story or discussion.

Student no. 342 commented:  
I think there should be more detail in the history textbook. I think history is important.

#### **Section 5 (Using different questions)**

Student no. 36 commented:  
I would like history teachers to use maps which enable students to understand clearly and to ask a lot of questions.

Student no. 170 commented that:  
History lessons should not be restricted to the teacher talking all the time. They should be accompanied by different questions so students do not become bored. I also suggest maps and transparencies.

Student no. 221 commented:  
I like my teacher when he asks me questions frequently during the lesson. Also I like him when he varies his teaching.

Student no. 277 commented that:  
Teachers should use discussion and different questions.  
There should be a library for history lessons.  
Students should be trained to solve problems.

Student no. 293 commented:

I wish that teachers use a lot of methods and questions.

Student no. 331 commented that:

Teachers should use different questions and discuss them with their students.

Student no. 346 commented:

I suggest that teachers should use more questions and different methods. I notice that there are not many questions in the history textbook.

### **Section 6 (History library)**

Student no. 46 commented:

I suggest that it is necessary to create a historical library or room for history lessons.

Student no. 68 commented:

I suggest that teachers use historical documents and other resources as well as the library during history lessons.

Student no. 150 commented:

I wish to visit museums or historical rooms.

Student no. 277 commented that:

Teachers should use discussion and different questions.

A library should be prepared for history lessons.

Students should be trained to solve problems.

Student no. 332 commented:

I enjoy participating in class discussion and I wish that teachers would use different methods.

It is important to create a historical library.

### **Section 7 (Different assignments)**

Student no. 53 commented:

I suggest that teachers prepare different assignments for students. I like history and geography.

Students no. 129 commented:

I enjoy history lessons when my teacher uses the discussion method or when he asks me to find answers to my questions by using the library.

Student no. 269 commented:

I like working in groups and doing projects.

Student no. 274 commented:

I enjoy using pictures and I like using various methods such as doing research and writing essays.

Student no. 290 commented:

I suggest that teachers help their students to do research after studying different lessons.

Student no. 292 commented:

I like working in groups and doing different assignment because I like writing essays.

### **Section 8 (More information to history book)**

Student no. 50 commented that:

History lessons are not enough.

The history textbook should include more information.

Student no. 76 commented:

I wish there was more information given in the history textbook and I wish it was clear.

Student no. 165 commented:

I like teachers who give their students more opportunity to discuss things and participate in the class activities.

I suggest that it is necessary for teachers to give more information about historical events, ask different questions and give students enough time to answer them.

Student no. 193 commented that:

There is not enough time in history lessons to discuss more information. I feel that the content needs more clarity.

Student no. 297 commented that:

One history lesson per week is insufficient.

There should be more information in the history textbook.

Student no. 343 commented:

I suggest using methods like discussion and story and having some questions at the end of each lesson. In addition, the history textbook is unclear.

### **Section 9 (Making a link between the past and present)**

Student no. 58 commented:

I suggest putting many different questions in the textbook. I like to know about the past and the present.

Student no. 187 commented that:

There is no link between the subject especially in history and the current situations.

Student no. 206 commented that:

History teachers should make a link between history lessons and the present.



Student no. 222 commented:

I would like to know more about other countries and current affairs.

### **Section 10 (Organization of history textbook)**

Student no. 344 commented:

I suggest that the history textbook should be better organized.

### **Section 11 (Students' age)**

Student no. 42 suggested:

Taking into account students' age.

### **Section 12 (More preparation for teachers)**

Student no. 47 suggested:

Increasing the history lessons from one session to two sessions per week.

The history teacher should be well prepared.

Student no. 140 commented that:

History teachers are not well prepared.

I would like history teachers to use a lot of resources.

### **Section 13 (Having questions at the end of each lesson)**

Student no. 58 commented:

I suggest putting many different questions in the textbook. I like to know about the past and the present.

Student no. 299 commented:

I suggest adding some questions at the end of each lesson or at the end of each chapter in the history textbook.

Student no. 302 suggested:

Increasing history lessons in the secondary school.

Adding different questions at the end of each lesson.

Using different methods not only traditional method.

Student no. 350 commented that:

The history textbook's questions are inadequate.

**Some examples of Students' Responses to the Open-ended Question in the Students' Attitudes Questionnaire, translated from Arabic (Experiment Group)**

Student no. 6 commented:

I enjoyed working in groups very much.

Student no. 9 commented:

I enjoyed history this term because the teacher used different methods.

Students no. 14 commented:

I like the method used by my teacher.

Students no. 18 suggested:

Using different methods in history such as the method used by the teacher this term.

Student no. 21 commented that:

History is important but I do not like my teacher when he talks all the time.

Student no. 22 commented:

I wish that my teacher used different methods.

Student no. 25 commented:

I suggest to my teacher that he uses this method (inquiry method) frequently.

Student no 27 commented that

I like history but I would like to participate in discussion with my teacher.

